

Exhibit A

Supplemental Declaration of Douglas E. Kuntz

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF PENNSYLVANIA**

MINARD RUN OIL COMPANY, <i>et al.</i>,)	
)	
Plaintiffs,	)	Case No. 1:09-cv-00125-SJM
)	
v.)	
)	
UNITED STATES FOREST SERVICE, <i>et al.</i>,	)	<i>Electronically filed</i>
)	
Defendants.)	
)	

SUPPLEMENTAL DECLARATION OF DOUGLAS E. KUNTZ

I, Douglas E. Kuntz, hereby declare as follows:

1. My name is Douglas Kuntz, and I am President and Chief Operating Officer of the Pennsylvania General Energy Company, L.L.C. (PGE), an oil and gas exploration and production company, located in Warren, Pennsylvania. I have held this position since 2006 and have been with the Company for 24 years. I started as a petroleum geologist, soon became the development operations manager, and was subsequently promoted to executive vice-president for operations before assuming my current position. I have a Bachelor of Science degree in petroleum geology and an Associates Degree in science and petroleum engineering, both from the University of Pittsburgh. At this time we employ approximately 150 people who are located at our offices in Warren or at our field facilities in Marienville, Port Allegheny and Lycoming County, Pennsylvania. I provided testimony in this case before this Court at the evidentiary hearing on the preliminary injunction motion on August 24, 2009. PGE is a member of the Pennsylvania Independent Oil and Gas Association (PIOGA).

2. PGE owns approximately 40,000 acres of oil and gas bearing properties in the Allegheny National Forest (ANF). We currently operate over 1,300 oil and gas wells with over 850 of these wells located on our properties within the ANF. I am a lifelong resident of Northwest Pennsylvania. I grew up in Elk County and currently reside with my wife and children in Bradford, McKean County, Pennsylvania. I am very familiar with the ANF and have spent considerable time working there with PGE, as well as with other companies before joining PGE.

3. I have reviewed the testimony of the U.S. Forest Service Chief Thomas Tidwell presented at the U.S. House of Representatives, Committee on Agriculture, Subcommittee on Conservation, Energy, and Forestry, hearing on July 20, 2011, during which Subcommittee

Chairman Glenn Thompson asked Mr. Tidwell about why groundwater use in the ANF in connection with oil and gas operations had suddenly become a problem. Mr. Tidwell responded, in part, stating as follows: “The issue with groundwater, it’s not part of the processing of applications, it’s more of a concern with the groundwater and the quality of that groundwater. And it’s one of those things that we need to continue to move forward with and look at some other options, or to make sure that we are providing and ensuring that there won’t be impacts to the quality of that groundwater. This is a new issue that has just recently come forward, that we weren’t dealing with in previous permits. It’s one that we’re going to need to work with the industry, work with the applicants, and be able to find a way to move forward with this.” In Mr. Tidwell’s response to Congressman Thompson’s question about processing delays Chief Tidwell also remarked with regard to delays in processing development notifications as follows: “With the processing of the permits, we’re actually making progress. We’re not where we would like to be as far as the length of time. I think even a year ago it was taking almost 5 to 5 ½ months and we’re now down to 4 months. We processed 690 permit applications last year. One of the things occurring, is that the number of permit applications is significantly increasing. So this is one of things that we’re going to have to look at in order to find some more capacity to that forest [ANF] in order to deal with that influx of additional applications.” The transcript for the hearing is unavailable at this time, but audio and video of the hearing is provided at the following U.S. House of Representative website:
<http://agriculture.house.gov/hearings/hearingDetails.aspx?NewsID=1422>.

4. At the time Chief Tidwell made these statements at the congressional oversight hearing in July 2011, the Marten Letter of June 6, 2011 just recently had been issued, asserting, in part, that “the United States alone has the right to use groundwater located on these National Forest System lands,” and stating further that: “the Forest Service does not recognize any legal authority, whether by asserted property right, permission or otherwise, for Shell to utilize groundwater located beneath National Forest System lands on Warrants 3124 and 3781 as a source of water for the hydraulic fracturing of Marcellus Shale wells. Any such use would be viewed as a violation of applicable law.” As I stated in my initial declaration of July 15, 2011, groundwater and surface water have been used extensively for many decades in the ANF for hydraulic fracturing of oil and gas wells and for water-flooding, a secondary recovery method that has been in use in the ANF for at least the past half century.

5. In my initial declaration, I referred to the 1996 publication, “Allegheny Oil – The Historic Petroleum Industry on the Allegheny National Forest,” published by the U.S. Forest Service. Additional excerpts (page 52-55) from that 1996 publication are attached as Exhibit 1. The use of secondary recovery methods, including water-flooding in the ANF, are described.

6. An additional publication which details extensive water-flooding practices in the ANF region is “*Summary Secondary Recovery Operations in Pennsylvania to January 1, 1954*,” published by the Pennsylvania Geological Survey, Progress Report 148 (1955). That publication is noted in footnote number 145 of Exhibit 1, and is attached as Exhibit 2. The water-flooding practices described in this 1955 Pennsylvania Geological Survey report were continuing in the ANF when I started my career in the oil and gas industry in the early-1980s. I observed first-hand how extensive groundwater production wells in the ANF produced water which was then injected into the oil and gas producing formations through the water-flooding method to enhance oil and gas production. I worked on these operations for several years and

was aware of multiple water-floods in the ANF operated by others. Some of these water-flooding operations utilizing ANF groundwater continue to the present day, and these operations have been ongoing in the ANF without interruption for decades.

7. A U.S. Bureau of Mines report from 1967 (“U.S. Bureau of Mines Report”), attached as Exhibit 3, provides data illustrating the significant volume of ANF surface water that has been used for oil and gas development throughout the ANF’s history. The report describes a 36.5 acre pilot water-flood commenced on Warrant 3777 in the Kane oil field in 1963. Warrant 3777 is in the ANF. During the first three years of operation, 555,468 barrels or 23.3 million gallons of surface water were injected into the water-flood. See U.S. Bureau of Mines Report at 6, 23. Three years is a snapshot in the life of this water-flood project. If the acreage of the pilot water-flood were expanded to the equivalent hydraulically fractured acreage of a typical Marcellus Shale well of 115 acres, the volume that a water-flood would use in the first three years of its life would be 73 million gallons of surface water. Further, water-floods remain in operation for 30 to 40 years. In contrast, the complete hydraulic fracture of a typical Marcellus Shale well requires 5 million to 7 million gallons of water. Thus, a typical hydraulically fractured Marcellus Shale well uses 7 to 9 percent of the water needed for just three years of a water-flood operation. Measured against the 30 to 40 year lifespan of a water-flood, the Marcellus Shale well uses less than one percent of the water needed to operate a water-flood of the same 115 acres. This water-flood in the Kane oil field continues to this day, and approximately 11,000 acres of the surrounding area (including areas within the ANF) have been developed for water-flooding since the 1963 pilot project.

8. I am familiar with the water-flooding operation in the ANF known as “Flood 10,” which was operated by the Minard Run Oil Company and the subject of the 1980 decision of this Court known as *United States v. Minard Run Oil Co.*, 1980 U.S. Dist. LEXIS 9570 (Dec. 16, 1980) (*Minard Run I*). At the time that the Flood 10 project was being carried out, I was working in the immediately adjacent area of the ANF where I was supervising a water-flood project for PGE. Both of these water-flood projects used groundwater pumped from ANF lands for injection into the producing oil and gas formations to enhance oil and gas recovery, and the volumes of groundwater involved would have been far greater than the limited volumes of groundwater involved in the hydraulic fracturing of two Marcellus wells drilled by SWEPI in the ANF in 2011.

9. The use of groundwater in the ANF is regulated by the Pennsylvania Department of Environmental Protection (PADEP). The Forest Service, consistent with its non-opposition to groundwater use to produce oil and gas in *Minard Run I*, recognized this in 2009, stating that “PADEP would regulate water withdrawal and discharge” with respect to Marcellus shale development. Draft Supplemental EIS on the 2007 ANF Forest Plan at 3-14 (July 2009) (attached as Exhibit 4).

10. I would like to call the Court’s attention to the letter of September 14, 2010 that Mr. Mayer sent to Forest Supervisor Marten on behalf of PIOGA. A copy of the letter is attached as Exhibit 5. PIOGA notified Supervisor Marten about the dilatory processing of development notifications over a year ago and requested the Forest Service to expedite the project reviews. In a letter dated October 18, 2010, Supervisor Marten brushed aside PIOGA’s request to speed project processing and quoted the Court’s statement of March 19, 2010 that the

initial 60-day period after notification was not synonymous with “due regard.” A copy of Supervisor Marten’s letter is attached as Exhibit 6. Exhibits 5 and 6 evidence the Forest Service’s repeated refusals to meet with PIOGA representatives in order to resolve common issues in collaborative discussions.

11. With respect to Chief Tidwell’s testimony about delays in processing oil and gas projects, the facts simply do not support his statements. Chief Tidwell’s July 20, 2011 statements are contradicted by the ANF generated report dated August 12, 2011 (August ANF Report) which covers notice to proceed processing from December 15, 2009 through July 1, 2011. A copy of the ANF report is attached as Exhibit 7. First, in addition to the fact that Chief Tidwell mischaracterizes the ANF response to development notifications as “permit processing” and the notifications as “applications,” there is no basis for his conclusion that processing times are decreasing. The processing time for new notifications, has increased from 4 months to over 6 months in the course of the past year, and this is confirmed by the August ANF Report.¹ Second, it appears that there is no correlation between Chief Tidwell’s statement that Forest Service processed 690 applications and the August ANF Report of processed notices to proceed. Finally, Chief Tidwell’s statement to the Congress that the number of permit applications is “significantly” increasing disguises the actual decrease in the Forest Service workload with respect to development proposals. For example, the ANF received 24 development notifications in the six months between January 1, 2010 and July 1, 2010 that included a total of 415 wells. For the corresponding six month period in 2011, and immediately preceding Chief Tidwell’s testimony, the ANF received 30 development notifications that included only 246 wells. These facts indicate that the Forest Service workload for processing ANF development proposals had actually been decreasing while at the same time its processing delays had been increasing.

12. An ANF generated report dated October 28, 2011, attached as Exhibit 8, confirms the many unprocessed development notifications that the Forest Service has received since December 15, 2009. Since December 15, 2009, the Forest Service has received 106 oil and gas development notifications proposing the construction of oil and gas wells.² As of October 1, 2011, the Forest Service had issued Notices to Proceed for 52 of

¹ My previous report of a seven-month average processing time included an inaccurate data point provided by the Forest Service. While the Forest Service reports that Case No. B-128 was proposed after December 15, 2009, the Forest Service also states that it received initial notification of that proposal on June 8, 2009. Based on the case number sequencing, B-128 was more likely proposed on either December 7, 2010 or December 8, 2010. If it was, the processing time for that case was 127 or 126 days, which exceeds the 60-day proposal processing time frame established in *Minard Run I*. But because the initial notification date for Case No. B-128 has not been confirmed, that data point was removed from the average calculation. The average processing time for development proposals that received Notices to Proceed between July 15, 2010 and May 1, 2011, without taking B-128 into account, was over six months.

² The Forest Service reports that it has received notification of 116 cases, but ten of those involved pipeline proposals. While pipeline proposals receive the same Forest Service processing as oil and gas wells, we have limited our analysis in this case to oil and gas wells.

those 106 proposals. Of the remaining 54 proposals, only seven were noticed within 60 days of October 1, 2011. That means that of 106 proposals, the Forest Service has yet to act on 47 proposals that were noticed more than 60 days before October 1, 2011. Many of those 47 proposals have been pending since 2010.

13. I have been aware that the Forest Service has been working on a rulemaking to seek increased federal regulatory controls on oil and gas activities associated with private mineral estates in the ANF and on millions of acres of other National Forest lands acquired under the 1911 Weeks Act. The Forest Service published an advance Notice of Proposed Rulemaking on this subject on December 29, 2008, 73 *Fed. Reg.* 7924. In the fall of 2010, the Forest Service released (and re-released in the spring of 2011) limited public information on the status of this rulemaking in a document known as the Unified Agenda of Federal Regulatory and Deregulatory Activities, which asserted, among other things, that this rulemaking was expected to have “No” effect upon small business entities, and the document asserted that the “legal authority” for the rulemaking was “Not Yet Determined.” The Forest Service entries in the Unified Agenda are available at <http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201010&RIN=0596-AC87> (Fall 2010), and <http://www.reginfo.gov/public/do/eAgendaViewRule?pubId=201104&RIN=0596-AC87> (Spring 2011). Copies of these two documents are attached as Exhibit 9 (Fall 2010) and Exhibit 10 (Spring 2011).

14. A consultant for PIOGA submitted multiple requests under the Freedom of Information Act (FOIA) to the Forest Service to obtain information regarding the pending rulemaking concerning private mineral estates in acquired National Forests. In response to those FOIA requests, we obtained a summary of the rulemaking, dated February 9, 2011 (copy attached as Exhibit 11), which establishes that the intent of the Forest Service in this rulemaking is to subject all private mineral estate activities on acquired National Forests to the National Environmental Policy Act procedures. The summary also indicates that the Forest Service intends to create new controls and limitations on the use of ground and surface water associated with private mineral estates in National Forests. This intent is revealed by the following statements:

- “Commit the Forest Service to notifying the operator of the type of documentation the Forest Service will use to comply with the National Environmental Policy Act in its review of the proposed activity.”
- “Identify the conditions under which the Forest Service can approve a Plan of Operations, disapprove a Plan of Operations, or defer action on a Plan of Operations pending actions that an operator can take to enable approval.”

- “Specify that civil and criminal remedies may be invoked for noncompliant operations.”
- “Prohibit access to or withdrawal or impoundment of water resources from NFS lands, with some specified exceptions.”

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.



Douglas E. Kuntz

Date: November 1, 2011

Exhibit 1
to

Supplemental Declaration of Douglas E. Kuntz

USDA Forest Service
Eastern Region

Allegheny National Forest
Heritage Publication No. 1

April 1996



ALLEGHENY OIL

THE HISTORIC PETROLEUM INDUSTRY
ON THE ALLEGHENY NATIONAL FOREST

PHILIP W. ROSS

in partnership with

The Institute for the History of Technology and Industrial Archaeology

Allegheny Oil

The Historic Petroleum Industry on the Allegheny National Forest

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Allegheny National Forest
Heritage Resources Program

Allegheny Oil

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New Pools: Lewis Run, Marshburg, and Queen

An extension to the Bradford field was discovered at Lewis Run, due south of Bradford, in 1909. The producing sand at this locality was found at a level more than one hundred feet below the Bradford Third Sand. Initial production in the 1,800-acre pool ranged from one-half to eight barrels a day, making it a pool of small importance.¹³⁹ Similarly, a very small pool was discovered at Marshburg in 1929 by Mallory & Pringle in the Bradford Second sand. Their eight-year drilling program defined a small pool of about 235 acres on warrants 3414 and 3437. By 1940 there were 56 producers in the field; the long-lived wells ranged in initial production from two to eight barrels daily.¹⁴⁰ The field still produces with central powers.

The Queen pool, on the Siggins Farm four miles south of Tidioute on Red House Hill, was opened by Triumph field producer Charles Carnahan in early 1922, when he was searching for gas for his lease to the northwest. The Queen sand, primarily a gas producing formation, was well developed south of the prospecting area. Carnahan found oil as well as gas—100 barrels daily production, the biggest strike in years. Other operators, including A.V. Clinger and Jennings Brothers & Hertz, leased and drilled and the field soon took on boom dimensions, with 500-barrel wells and a maximum production of 5,500 barrels gauged from the pool. The field proved small and quickly faded.¹⁴¹

Secondary Recovery

The production from these new fields did not in any way compensate for the continuing decline in production from the established fields. The production of Pennsylvania oil continued to decline, reaching a low in 1906. The chief problem was, as Lesley and Carll had accurately predicted, the wasteful production practices characteristic of the nineteenth-century boom ethic. In all of the declining fields, significant reserves of petroleum remained. However, the reservoir pressure had been depleted, which left no propellant to move the petroleum out of the sands. Producers began to search for methods to restore pressure to their gas-depleted reservoirs.

¹³⁹ Fettke, *Bradford Oil Field*, 281.

¹⁴⁰ Lytle, *Crude Oil Reserves of Pennsylvania*, 186; Fettke, *Music Mountain Pool*, 31.

¹⁴¹ Miller, *Petroleum Industry in Warren County*, 101.

Water Flooding

As early as 1880, John F. Carll observed that when groundwater entered a producing formation either by accident or through intentionally pulled casings, the flooding of the sand often had a beneficial effect on surrounding wells for a certain period.¹⁴² Attentive operators noticed it too, but a Pennsylvania law forbade intentionally flooding oil sands (the rule was directed towards preventing economic blackmail of operators by their neighboring producers). By 1906, the Bradford field's production had "mysteriously" begun to rise and it was general knowledge that some operators selectively and systematically pulled the casings of wells and allowed water to enter the producing formation. This early system was known as a "circle flood," since the method enhanced recovery in a radial pattern. At first, this practice led to a great deal of waste and uncontrolled flooding. For example, the Deerlick field was waterflooded in the early twenties by pulling casings, and though production in some wells increased to forty barrels a day, the flood pattern got out of control and entirely watered out the field. Still, by the 1920s waterflooding had proven its promise and was becoming a science.¹⁴³

Modifications to waterflooding practice came in 1922 as the Forest Oil Company developed the "line flood," a method that consisted of two rows of oil wells evenly spaced between a row of water-intake wells. Wells were spaced 200 feet apart and the rows 100 to 130 feet apart. As the oil wells were watered out, usually within a period of three years, they were converted to intake wells and a new row of producing wells were drilled.¹⁴⁴

By 1928 a newer and more successful process eclipsed the line flood. The entire lease was laid out into squares, water intakes were drilled at the intersections, and a producing well was located at the center of each square. This "five-spot" flood quickly became the standard method for waterflooding adopted in the Bradford field. Operators made various improvements to the system, including pressure flooding and a variant seven-spot flood, but all are forms of this most successful method. Pennsylvania production again rose quickly—so quickly that Bradford broke the market for lube stocks in 1930, proving again the association between depression and overproduction. Indeed, the Bradford field was the only Appalachian field that was subject to prorated production.

¹⁴² J.F. Carll, *The Geology of the Oil Regions of Warren, Venango, Clarion, and Butler Counties*, Report III (Harrisburg: Second Pennsylvania Survey, 1880), 263.

¹⁴³ Fettke, *Bradford Oil Field*, 7-8; Lytle, *Crude Oil Reserves of Pennsylvania*, 228.

¹⁴⁴ Fettke, 8-9.

Pennsylvania's second production peak occurred in 1937 at 10,930,799 barrels as the Bradford field came back to life through waterflooding. In many cases, secondary methods boosted production rates higher than they had been under natural pressure when the field was developed.¹⁴⁵

The Bradford Sand horizons proved to be particularly conducive to waterflooding operations since the sandstone is, in comparison to other producing sands, very permeable. The Clarendon and Tiona fields, similarly, are amenable to waterflooding. However, when waterflooding was attempted in other sands in the Middle District, the results were often discouraging.¹⁴⁶

Gas Drive

As early as 1869 some producers in the Triumph-Tidioute field installed low-pressure beam-driven vacuum pumps and connected them to their wells' casing heads, the theory behind the practice being that the vacuum would suck the petroleum out of the rock. Though this is not quite precisely what happened, production did increase and gas pump usage spread slowly through the Appalachian field. This technology was the first application of secondary recovery techniques.

In 1888, a Venango County producer named J.D. Dinsmoor noticed that the production of his established lease increased significantly when a gas well was drilled on a neighboring lease. He suspected that the gas, produced from a deeper formation, was entering the same producing formation his wells tapped. His suspicions were confirmed when the new well was packed at the level of the gas sand and his wells declined to their former productive level. Deducing that gas could be mechanically reintroduced into a producing formation, he purchased a number of unproductive but inexpensive leases near St. Marys, West Virginia to test his theory. He installed a newly-developed compressor (the Russell Gas Pump, manufactured in Noblestown, Pennsylvania), coupled to a gas engine, to draw gas from the casingheads of several wells. The compressed gas was then tubed down a centrally-located well, called a "blowback." The shallow sand in West Virginia proved conducive to this method, and Dinsmoor, who did not patent the process, hid the installations under brush heaps to disguise the process while he accumulated more leases.¹⁴⁷

¹⁴⁵ *Ibid.*, Lytle, *Secondary Recovery Operations in Pennsylvania to January 1, 1954* (Harrisburg: Topographic and Geologic Survey, 1955), 1; Tait, 68.

¹⁴⁶ Lytle, *Crude Oil Reserves of Pennsylvania*, 225-229. For instance, the Dew Drop Sand, less permeable, is not amenable to waterflooding.

¹⁴⁷ "Petroleum Panorama," D22-D23; Testimony of James D. Dinsmoor, *Petroleum Patents Company v. Walter and Frederick Squires*, eq. 141; Defendant's Proofs, vol. 1 (U.S. District Court,

A variant of this system was the Smith-Dunn or Marietta process, which used compressed air to replace the gas. This process apparently rose independently of the Dinsmoor gas drive process. It was first used in the Macksburg, Ohio field in 1903 in a shallow sand pool where the gas pressure was depleted. This process was used in areas where the original gas pressure was entirely lacking, as in the oldest developed fields. Natural gas-powered air compressors from 20 to 100 horsepower are used in the secondary recovery process with pressures between 40 and 300 pounds per square inch.¹⁴⁸ The apparatus for gas drive and air drive are quite similar.

Gas drive became a widely-used method for oil recovery by the teens, although not as extensively as water flooding. In northern Pennsylvania, it was tried in the fields that did not respond to water flooding. Its widest use was in the Cooper, Balltown, and Tidioute fields, where it was used successfully through the World War II era. It was often used on leases where natural gasoline was already being produced, since the necessary equipment was already in place.¹⁴⁹

Natural Gasoline Production

Early shippers of natural gas noticed that low places in their pipelines collected a combination of condensed water and light-gravity gasoline that condensed from the petroleum vapors and gas. As this created a dangerous situation, especially if it entered the compressors, the gasoline was separated in "drips," or shunts off the main gas line, and then drained or burned.

As internal combustion engines began to assume more importance after the turn of the century, gas producers realized that a new market now existed for their former waste product. Oil producers whose wells produced significant amounts of casinghead gas (so called because it rose from the well between the casing and the tubing) were also eager for a method for increasing returns from declining leases.

In 1904 Anthony Fasnemeyer of Tidioute, Pennsylvania, produced gasoline

Southern District of Ohio, 1920), 68-75; Philip W. Ross, "Makin' Hole, Pumpin' Oil: An Oral History of a West Virginia Oil Field," Technical Report No. 9 (Morgantown, W.Va.: Institute for the History of Technology and Industrial Archaeology, 1994), 2.

¹⁴⁸ The process was first used on the Wood farm of the Cumberland Oil Co. near Chesterhill, Ohio, by I.L. Dunn in August 1911. J.O. Lewis, "Methods for Increasing the Recovery From Oil Sands," U.S. Bureau of Mines Bulletin 148 (Washington: GPO, 1917), 37.

¹⁴⁹ Lytle, *Crude Oil Reserves of Pennsylvania*, 150-151, 238.

Exhibit 2
to

Supplemental Declaration of Douglas E. Kuntz

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PROGRESS REPORT 148
PENNSYLVANIA GEOLOGICAL SURVEY
" FOURTH SERIES

SUMMARY
SECONDARY RECOVERY OPERATIONS
IN PENNSYLVANIA TO
JANUARY 1, 1954

Including
PETROLEUM RESERVES AND PRODUCTION
BY COUNTIES

BY
WILLIAM S. LYTLE



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF INTERNAL AFFAIRS
GENEVIEVE BLATT, *Secretary*
TOPOGRAPHIC AND GEOLOGIC SURVEY
CARLYLE GRAY, *Acting Director*
1955

FOREWORD

In conformity with the action of the Executive Committee of the Interstate Oil Compact Commission taken at Fort Worth, Texas, October 4, 1949, the Commonwealth of Pennsylvania has cooperated with the Interstate Oil Compact Commission in the study of secondary recovery operations in the United States.

The Pennsylvania Bureau of Topographic and Geologic Survey, in cooperation with the Pennsylvania Secondary Recovery Committee of the Secondary Recovery Division of the Interstate Oil Compact Commission, has made a study of the secondary recovery operations in the State by gathering the data included in this publication. Additional information is included to bring up to date the material published in the Bureau's Bulletin M 32 "Crude Oil Reserves of Pennsylvania".

In Pennsylvania there are 76,339 stripper wells producing an average of less than one-half barrel of oil per day. However, these wells have produced over 1,180,000,000 barrels of oil, and perhaps as much as one-half a billion barrels of additional oil may be recovered from these wells by the use of secondary recovery methods of water-flooding and air or gas injection.



Secretary of Internal Affairs

SUMMARYSECONDARY RECOVERY OPERATIONS IN PENNSYLVANIATo January 1, 1954IncludingPETROLEUM RESERVES AND PRODUCTION BY COUNTIESBy William S. LytleINTRODUCTION

This report summarizes information on the secondary recovery projects in Pennsylvania to January 1, 1954 and includes a table listing the secondary recovery projects in operation at the close of 1954. Data on petroleum reserves and county crude oil production is included for the years 1947 to 1953 inclusive. Information contained in this report is intended to supplement Bulletin M32, "Crude Oil Reserves of Pennsylvania".

SECONDARY RECOVERY

The peak year in production by primary methods in Pennsylvania was 1891 (figure 1), when a total of 31,424,000 barrels was produced. This peak was largely due to the flush production of the McDonald field. Following a period of declining production, a secondary peak was attained in 1937, when 19,990,000 barrels of crude oil were produced largely by secondary methods. In 1953 the annual production had declined to 10,930,799 barrels. By January 1, 1954 the Pennsylvania oil fields had produced 1,180,310,000 barrels of crude oil since the discovery of the Drake Well in 1859.

Figure 2 is a map of the Pennsylvania oil fields listing the fields under secondary recovery and showing the type of injection used in each field. Figure 3 shows the general stratigraphic position of the formations under injection and the type of injection used. General information on the projects in each Pennsylvania oil field under secondary

recovery is shown in table 1. A few of the water flood projects listed in this table are "dump" floods.

The Bradford district, consisting of about 100,000 acres, is in the Northern crude oil producing district (figure 4) of Pennsylvania and includes the production of all of the Bradford (14 percent lies in New York), Guffey and Burning Well pools. Over 90 percent of the production from this district comes from the Bradford pool. The Bradford District is currently producing about 45 percent of all the Pennsylvania-grade crude oil. About 556,096,000 barrels had been produced by January 1, 1954 in this district, of which 257,498,000 barrels (figure 5), can be attributed to natural production and 298,608,000 barrels to flood production. The production curve (figure 5), of the Bradford District is a typical production curve of an area under water flood. The estimated natural production curve in figure 5 is an estimate of what the Bradford District would have produced if secondary recovery had never been initiated. The broken line in figure 1 should be considered in the same light.

The total recovery in Pennsylvania by secondary methods at the end of 1953 was 317,208,000 barrels; 300,308,000 barrels were produced by water-flooding and 17,000,000 barrels by air or gas drive. Subtracting this total secondary recovery figure from the total oil produced at the end of the same period leaves 863,102,000 barrels total natural production.

The northern district is producing 85 percent of the present Pennsylvania oil production, while the Middle district is producing 11 percent and the Southern district 4 percent. Most of the oil fields in the Northern district are under secondary recovery development. A number of fields in the Middle and Southern districts not yet producing under secondary recovery methods should respond favorably to air or gas drive.

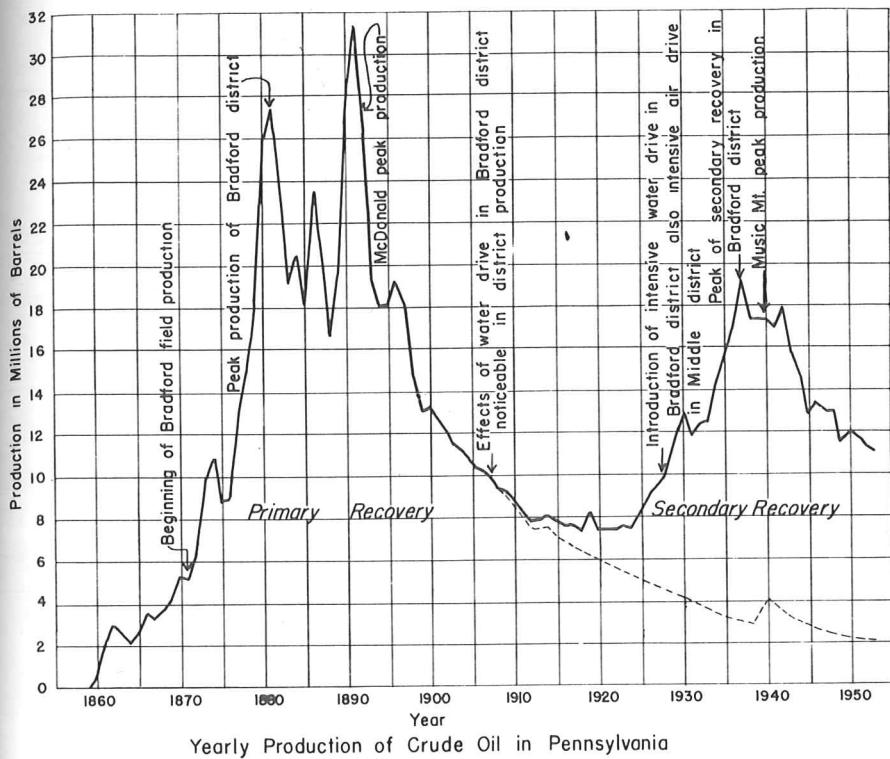


Fig. 1- Annual production of crude oil in Pennsylvania; showing the influence of secondary recovery and other events upon the production curve

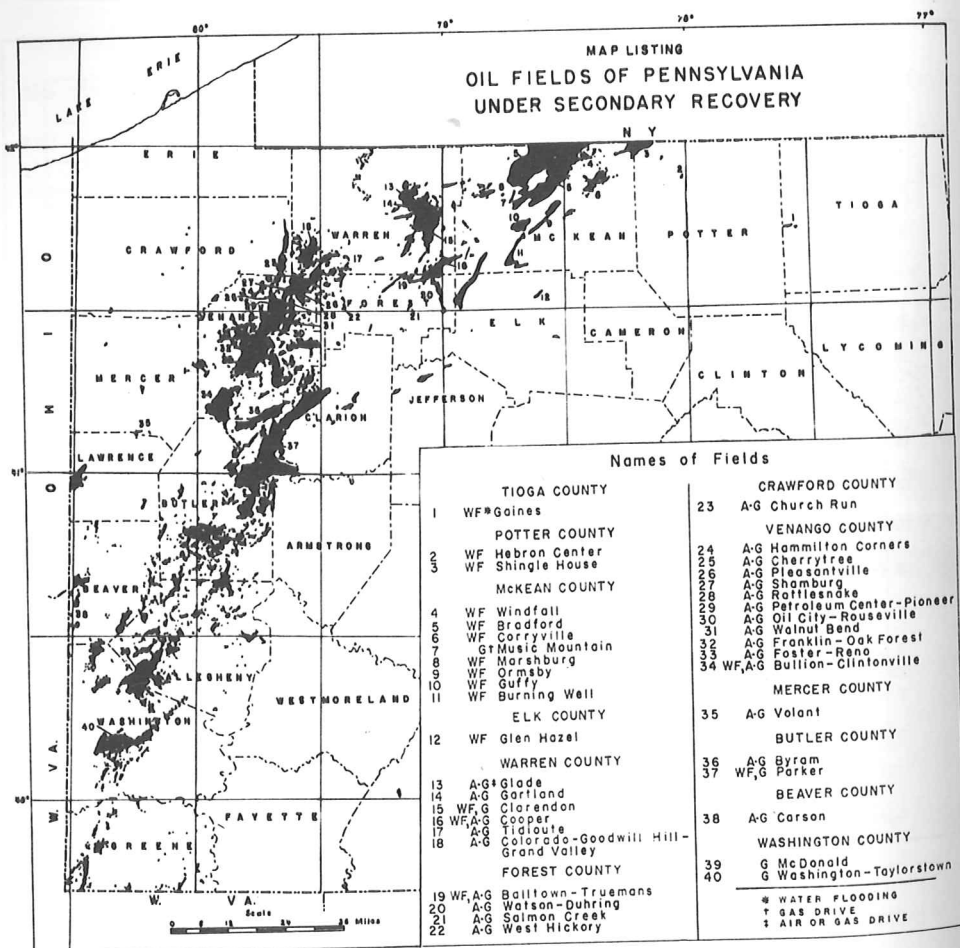


Figure 2

Figure 3

Generalized Columnar Section Showing the Oil Bearing Sands Subjected to Air or Gas Drive or Water Flooding in Western Pennsylvania

SYSTEM	GROUP	GRAPHIC LOG	FORMATION	SECONDARY RECOVERY METHOD IN USE
PENNSYLVANIAN	CONEMAUGH		PITTSBURGH COAL	
			MURPHY SAND	
			AMES LIMESTONE	
			SALTSBURG SAND	
			LITTLE DUNKARD SAND	
	ALLE- GHENY		BIG DUNKARD SAND	
			UPPER FREEPORT COAL	
			FIRST GAS SAND	
			FIRST SALT SAND	
			SECOND SALT SAND	
MISSISSIPPIAN	POCONO		MAXTON SAND	
			GREENBRIER LIMESTONE	
			LOYALHANNA LIMESTONE	
			BIG INJUN SAND	
			SQUAW SAND	
	CONEWANGO		CORRY, BEREA, SECOND GAS SANDS	A-G*
			MURRYSVILLE SAND	
			HUNDRED FOOT, FIRST, AND GANTZ SANDS	A-G
			FIFTY FOOT, WHITE, AND ROSENBERRY SANDS	A-G
			LYTLE AND RED VALLEY SANDS	A-G, WF†
DEVONIAN	CONNEAUT		UPPER NINEVEH SAND	A-G
			SECOND, THIRTY FOOT, AND LOWER NINEVEH SANDS	A-G
			SNEE AND GORDON STRAY SAND	A-G
			BOULDER, KNOX THIRD, AND SHIRA SANDS	A-G
			KNOX FOURTH, THIRD STRAY, CLARION, GRAY, AND GORDON SANDS	A-G
	CANADAWAY		BYRAM, KNOX FIFTH, THIRD, AND FOURTH SANDS	A-G
			FIFTH SAND	
			BAYARD SAND	
			ELIZABETH SAND	
			"PINK ROCK"	
DEVONIAN	CANADAWAY		BRADFORD FIRST, QUEEN, AND GLADE SANDS	A-G
			WATSONVILLE SAND	A-G, WF
			CLARENDON, KINZUA, SUGAR RUN, AND DEWDROP SANDS	A-G
			SPEECHLEY AND BALLTOWN SANDS	A-G
			CHERRY GROVE, GARTLAND, AND CHIPMUNK SANDS	
	CANADAWAY		BRADFORD SECOND SAND	WF
			COOPER AND HARRISBURG RUN SANDS	A-G, WF
			KLONDIKE, DEERLICK, AND SLIVERVILLE SANDS	G‡
			BRADFORD THIRD SAND	WF
			LEWIS RUN SAND	
DEVONIAN	CANADAWAY		UPPER KANE SAND	WF
			LOWER KANE SAND	
			SARTWELL SAND	WF
			HASKILL SAND	WF
	CANADAWAY		BRADFORD FIRST, QUEEN, AND GLADE SANDS	A-G
			WATSONVILLE SAND	A-G, WF
			CLARENDON, KINZUA, SUGAR RUN, AND DEWDROP SANDS	A-G
			SPEECHLEY AND BALLTOWN SANDS	A-G
			CHERRY GROVE, GARTLAND, AND CHIPMUNK SANDS	

* AIR OR GAS DRIVE
† WATER FLOODING
‡ GAS DRIVE

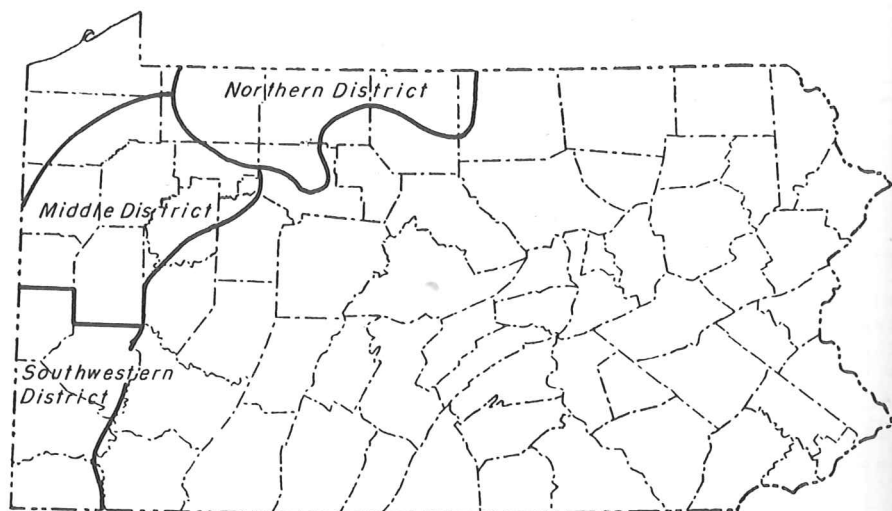


Figure 4. Crude Oil Producing Districts in Pennsylvania

Most of the economically successful water-floods in Pennsylvania are located in the Northern district. An economical flood is operating in the Middle district in the Bullion-Clintonville field where the Second sand is being flooded. The flood pattern is known as a five spot with the producing well generally located in the center of a square and is surrounded by four water intake wells at the corners of the square. The distance between intake and producing wells varies from 225 to 250 feet. An average of 8 to 9 barrels of water is required to produce a barrel of oil, although for some projects an average of up to 25 barrels of water may be used when computing for the entire life of the flood.

The Bradford pool in Pennsylvania covers 72,200 acres. Of this total acreage, 5,760 acres in the pool proper are yet to be developed under secondary methods, 9,560 acres are considered marginal and have

not been subjected to secondary methods and 3,680 acres have been abandoned, leaving 53,200 acres at present under flood. There are 550 water-flood projects in operation in the pool, consisting of 22,700 water input wells and 20,900 producing oil wells.

Air or gas injection is widespread in the Middle district. A reverse seven spot pattern is used where each producing well is located in the center of a triangle and is affected by 3 air or gas input wells located at the three points on the triangle. This pattern is used in intensive operations where spacing is 150 to 250 feet between inputs and producers. Many other patterns are used depending on the location of the producing wells in operation when the project is initiated. The peak year in production by air or gas injection was 1929. A typical production curve of an air or gas drive project is shown in figure 6.

Seventy-nine percent of the state's 1953 production can be attributed to water-flooding, nine percent to air or gas injection, and 12 percent to natural production, some of which is being produced under vacuum. The petroleum industry in Pennsylvania is operating 103,886 wells. 27,547 are input wells in secondary recovery projects and 76,339 are producing oil wells. There are 25,362 input wells and 23,545 oil wells associated with water-flood projects. 2,185 input wells and 7,740 oil wells are operating in air or gas injection projects. The remaining 45,054 wells are oil producers, either natural or under vacuum.

PETROLEUM PRODUCTION AND RESERVES

The crude oil production history of the major oil producing counties in Pennsylvania are shown in figures 7a, 7b, 7c, 8 and 9. The affect of secondary recovery on the county production curves is very noticeable for Crawford, McKean, Potter and Warren counties. Pennsylvania production is

TABLE 1.

SECONDARY RECOVERY PROJECTS OPERATING IN PENNSYLVANIA AT CLOSE OF 1954

Map No.	Field	County	Number of Projects	Number Injection Wells	Number Producing Wells	Acres Subjected Injection	Name of Formation	Depth Top of Pay-ft.
1.	Gaines	Tioga	1	8 W†	7	25	*Atwell	775
2.	Hebron Center	Potter	1	40 W	48	100	Bradford Third	1 395
3.	Shingle House	McKean and Potter	10	331 W	318	766	Bradford Third	1 165
4.	Windfall	McKean	3	122 W	107	280	Bradford Third	1 300
5.	Bradford	McKean	550	22 700 W	20 900	53 200	Bradford Third	1 400
6.	Coryville	McKean	2	117 W	125	255	Haskill	1 900
7.	Music Mountain	McKean	4	64 G†	229	390	Sliverville	1 500
8.	Marshburg	McKean	1	13 W	9	42	Bradford Second	1 300
9.	Ormsby	McKean	1	18 W	30	100	Bradford Third	2 150
			1	31 W	25	111	Upper Kane	2 250
10.	Guffy	McKean	4	719 W	755	2 315	Bradford Third	1 650
11.	Burning Well	McKean	2	619 W	650	1 885 300	Bradford Third Upper Kane	1 400 1 600
12.	Glen Hazel	Elk	1	53 W	52	118	Bradford Third	1 950
13.	Glade	Warren	1	2A-G ^x	5	25	Glade	900
14.	Gartland	Warren	1	1A-G	8	10	Gartland	1 200
15.	Clarendon	Warren	15	533 W	434	1 280	Clarendon	1 190
			2	12A-G	130	112	Clarendon	1 190

Table 1 (2)

SECONDARY RECOVERY PROJECTS OPERATING IN PENNSYLVANIA AT CLOSE OF 1954

Map No.	Field	County	Number of Projects	Number of Injection Wells	Number Producing Wells	Acres Subjected to Injection	Name of Formation	Depth of Top of Pay-ft.
16.	Cooper	Warren	1	2 W	15	10	Balltown	1 400
			1	2A-G	16	30	Balltown	1 400
			2	23A-G	57	155	Cooper	1 650
17.	Tidiloute	Warren	2	46A-G	207	426	First	450
			1	40A-G	170	500	Red Valley	550
			1	7A-G	40	100	Second	600
			6	166A-G	533	1 635	Third	700
			1	7A-G	36	200	First Third	450 750
			1	15A-G	170	600	Second Third	600 700
			1	6A-G	25	50	Queen	1 150
18.	Colorado-Goodwill Hill Grand Valley	Warren	3	311A-G	903	1 913	First Third	375 675
			4	310A-G	786	3 284	Third	700
19.	Balltown-Truismans	Forest	1	2 W	6	25	Balltown	1 500
			1	3A-G	10	50	Balltown	1 500
20.	Watson-Duhring	Forest	1	1A-G	4	20	Balltown	1 700

SECONDARY RECOVERY PROJECTS OPERATING IN PENNSYLVANIA AT CLOSE OF 1954

Table 1 (3)

Map No.	Field	County	Number of Projects	Number of Injection Wells	Number Producing Wells	Acres Subjected to Injection	Name of Formation	Depth of Top of Pay-ft.
21.	Salmon Creek	Forest	1	4A-G	15	90	Knox Third	800
22	West Hickory	Forest	3	23A-G	55	90	Red Valley	700
			1	11A-G	70	350	Third Stray	650
23.	Church Run	Crawford	10	98A-G	402	641	Third	575
24.	Hamilton Corners	Venango	1	9A-G	60	75	First	500
25.	Cherrytree	Venango	1	3A-G	23	40	First	650
26.	Pleasantville	Venango	1	11A-G	54	90	First	600
			10	237A-G	922	1 331	Red Valley	600
			1	14A-G	38	100	Second	650
			1	79A-G	191	600	Red Valley Third	600 750
			1	89A-G	217	822	First Second Third	450 650 750
27.	Shamburg	Venango	3	17A-G	78	105	Third	650
28.	Rattlesnake	Venango	1	5A-G	24	75	First	600

Table 1 (4)

Map No.	Field	County	Number of Projects	Number of Injection Wells	Number Producing Wells	Acres Subjected to Injection	Name of Formation	Depth Top of Pay-ft.
29.	Petroleum Center-Pioneer	Venango	1	86A-G	278	800	First Second Third	420 600 720
			1	10A-G	60	75	Second	600
30.	Oil City-Rouseville	Venango	2	11A-G	47	75	First	450
			1	84A-G	517	1 003	Second	600
			1	2A-G	11	15	Third	750
			1	13A-G	49	80	First Second	450 630
			2	23A-G	48	75	Second Third	600 730
			1	19A-G	50	65	First Second Third	450 630 750
31.	Walnut Bend	Venango	1	6A-G	20	50	Red Valley	500
32.	Franklin Oak forest	Venango	1	1A-G	15	10	First	550
			1	20A-G	158	400	Second	725
33.	Foster-Reno	Venango	7	164A-G	692	1 687	Second	750
			9	67A-G	193	267	Second Third	750 875

SECONDARY RECOVERY PROJECTS OPERATING IN PENNSYLVANIA AT CLOSE OF 1954

Table 1 (5)

Map No.	Field	County	Number of Injection Projects	Number of Injection Wells	Number Producing Wells	Acres Subjected to Injection	Name of Formation	Depth of Top of Pay-ft.
34.	Bullion-Clintonville	Venango	4	47 W	58	196	Second	1 050
			1	1A-G	12	10	Second Third	1 050 1 175
			1	6A-G	9	30	Third	1 175
35.	Volant	Mercer	1	5A-G	30	120	First	750
36.	Byram	Butler	1	2A-G	4	10	Second Third	1 150 1 280
37.	Parker	Butler	1	7 W	6	12	Knox Third	1 100
			1	3A-G	10	15	Knox Third	1 100
38.	Carson	Beaver	2	5A-G	21	65	Berea	1 300
39.	McDonald	Washington and Allegheny	1	12A-G	125	3 200	Gordon Fourth	2 186 2 250
40.	Washington Taylorstown	Washington	1	26A-G	255	5 000	Gordon	2 525
	Total		705	27 547	31 285	87 981		

* This sand occurs in strata of Upper Devonian age about 700 feet below the lowest red beds of the Catskill facies.

† Water injection.

‡ Gas injection.

× Air or gas injection.

TABLE 2.

WELLS AND CRUDE OIL PRODUCTION IN PENNSYLVANIA BY COUNTIES

County	1947			1948			1949			1950		
	Number of producing oil wells	Crude oil production (bbls.)	Number of producing oil wells	Crude oil production (bbls.)	Number of producing oil wells	Crude oil production (bbls.)	Number of producing oil wells	Crude oil production (bbls.)	Number of producing oil wells	Crude oil production (bbls.)	Number of producing oil wells	Crude oil production (bbls.)
Allegheny	982	186 747	878	181 135	827	173 346	827	173 346	784	155 430	784	155 430
Armstrong	247	16 453	245	15 316	248	16 455	248	16 455	245	16 483	245	16 483
Beaver	339	18 146	327	19 393	296	18 719	296	18 719	257	15 676	257	15 676
Butler	4 090	267 615	3 929	256 818	3 696	242 450	3 696	242 450	3 634	233 568	3 634	233 568
Clarion	1 907	69 605	1 838	65 422	1 735	69 521	1 735	69 521	1 724	64 773	1 724	64 773
Crawford	1 091	41 908	1 096	46 032	1 047	45 073	1 047	45 073	1 058	35 520	1 058	35 520
Elk	701	38 494	711	35 121	711	61 233	711	61 233	1 158	65 401	1 158	65 401
Forest	1 272	69 347	1 240	37 602	1 160	67 383	1 160	67 383	564	69 726	564	69 726
Greene	629	101 021	591	95 076	570	79 153	570	79 153	106	5 640	106	5 640
Jefferson	103	4 907	105	6 070	104	6 300	104	6 300	36	9 952	36	9 952
McKean	36 130	10 762 322	36 142	10 689 895	36 652	9 367 546	36 652	9 367 546	36 558	525	36 558	525
Mercer	247	7 238	247	7 163	244	6 942	244	6 942	248	869	248	869
Potter	256	40 592	303	46 726	313	42 905	313	42 905	304	125 561	304	125 561
Tioga	50	2 750	50	3 093	50	3 412	50	3 412	50	2 432	50	2 432
Venango	22 435	664 473	21 791	627 955	21 296	642 845	21 296	642 845	21 025	551 719	21 025	551 719
Warren	9 287	391 007	9 500	506 849	9 449	486 453	9 449	486 453	9 369	447 701	9 369	447 701
Washington	1 422	293 266	1 264	270 141	1 217	239 423	1 217	239 423	1 216	221 366	1 216	221 366
Total	81 188	12 975 893	80 257	12 909 807	79 615	11 569 160	79 615	11 569 160	78 976	12 007 520	78 976	12 007 520

Table 2 (2)

WELLS AND CRUDE OIL PRODUCTION IN PENNSYLVANIA BY COUNTIES

County	1951			1952			1953			Total crude oil pro- duction 1947 to 1953 inclusive (bbls.)
	Number of ¹ producing oil wells	Crude oil ¹ production (bbls.)	Number of ¹ producing oil wells	Crude oil ¹ production (bbls.)	Number of ¹ producing oil wells	Crude oil ¹ production (bbls.)	Number of ¹ producing oil wells	Crude oil ¹ production (bbls.)		
Allegheny	734	150 169	1 209	147 831	653	159 622	1 154	280		
Armstrong	243	15 643	374	15 752	239	15 138	111	240		
Beaver	257	16 322	417	14 640	242	14 397	117	293		
Butler	3 539	235 765	3 445	216 871	3 293	215 572	1 668	659		
Clarion	1 703	63 091	1 669	63 601	1 608	59 291	455	304		
Crawford	910	37 886	916	35 295	848	39 383	281	097		
Elk	668	24 146	673	31 569	658	32 097	259	792		
Fayette	6	752	12	788	6	735	2	275		
Forest	1 160	59 047	1 160	48 825	1 157	72 908	420	513		
Greene	502	67 669	851	65 626	445	62 893	541	164		
Jefferson	106	5 831	106	5 712	107	5 660	40	120		
McKean	36 064	9 404 768	36 031	9 057 674	36 172	8 742 008	67	976 738		
Mercer	248	6 341	246	6 652	241	5 796	47	001		
Potter	371	219 543	403	223 335	383	211 488	910	150		
Tioga	18	2 750	18	3 296	16	2 748	20	481		
Venango	19 448	672 919	21 285	607 268	19 698	599 422	4	366 601		
Warren	9 762	499 204	9 727	476 021	9 488	475 139	3	282 374		
Washington	1 168	218 572	2 079	212 774	1 085	216 502	1	672 044		
Total	76 907	11 700 419	80 621	11 233 530	76 339	10 930 799	83	327 126		

1. Data from Report on Productive Industries, Public Utilities and Miscellaneous Statistics by Pa. Dept. of Int. Affairs. See: Lytle, William S., 1950, Crude Oil Reserves of Pennsylvania, Pa. Geol. Survey, 4th Ser., Bull. M32 for statistics from 1859 to 1946 inclusive.

TABLE 3.

SUMMARY OF COUNTY OIL RESERVES AS OF JANUARY 1, 1954

County	Acres	Total Oil in place (bbls.)	Proved Recoverable ¹ by Primary plus Sec- ondary methods (bbls.)	Probably ² Recoverable by Secondary methods (bbls.)	Possibly ³ Recoverable by Secondary methods (bbls.)
Allegheny	44 722	78 242 000	2 762 000	15 901 000	23 949 000
Armstrong	11 432	31 473 000	681 000	7 786 000	7 786 000
Beaver	13 407	27 763 000	436 000	4 894 000	5 297 000
Butler	103 026	281 522 000	13 525 000	50 584 000	90 294 000
Clarion	22 910	76 482 000	6 802 000	14 482 000	37 519 000
Crawford	8 360	54 005 000	3 542 000	7 679 000	19 919 000
Elk	6 160	26 060 000	640 000	2 044 000	2 340 000
Forest	16 277	64 578 000	5 374 000	11 655 000	29 957 000
Greene	13 261	19 897 000	940 000	4 249 000	4 561 000
Jefferson	1 534	3 140 000	111 000	470 000	1 232 000
Lawrence	8 350	16 700 000	100 000	1 000 000	1 000 000
McKean	101 775	826 611 000	91 858 000	122 830 000	162 830 000
Mercer	4 500	7 072 000	422 000	932 000	2 462 000
Potter	4 420	30 710 000	2 590 000	4 490 000	6 090 000
Tioga	450	2 170 000	15 000	25 000	35 000
Venango	155 819	725 443 000	51 928 000	113 226 000	288 287 000
Warren	63 777	292 365 000	25 988 000	47 755 000	83 771 000
Washington	45 013	86 877 000	5 921 000	18 184 000	37 722 000
Total	625 193	2 651 110 000	213 635 000	428 186 000	805 051 000

1. Reserve figures as published by Lytle, William S., 1950, Crude Oil Reserves of Pennsylvania, Pa. Geol. Survey, 4th Ser., Bull. M32, have been increased by 1,000,000 barrels for Greene County, 100,000 barrels for Jefferson County, 72,377,000 barrels for McKean County and 20,000 barrels for Tioga County.
2. Reserve figures increased by 62,000,000 barrels for McKean County and 30,000 barrels for Tioga County.
3. Reserve figures increased by 40,000,000 barrels for McKean County and 40,000 barrels for Tioga County.

continuing to decline, but most of the oil fields would have been abandoned years ago if secondary recovery hadn't been initiated. Table 2 shows the number of producing oil wells and the crude oil produced by counties for 1947 to 1953 inclusive, as reported by the Pennsylvania Bureau of Statistics.

The total oil in place in the Pennsylvania oil fields as of January 1, 1954, was 2,651,110,000 barrels. This and other information is shown in table 3. The proved recoverable reserve by primary plus secondary methods, for the areas now operating under secondary recovery methods, is estimated at 110,892,000 barrels as of January 1, 1954. Other areas are considered amenable to secondary recovery methods, thus increasing the proven reserve to 213,635,000 barrels as of January 1, 1954.

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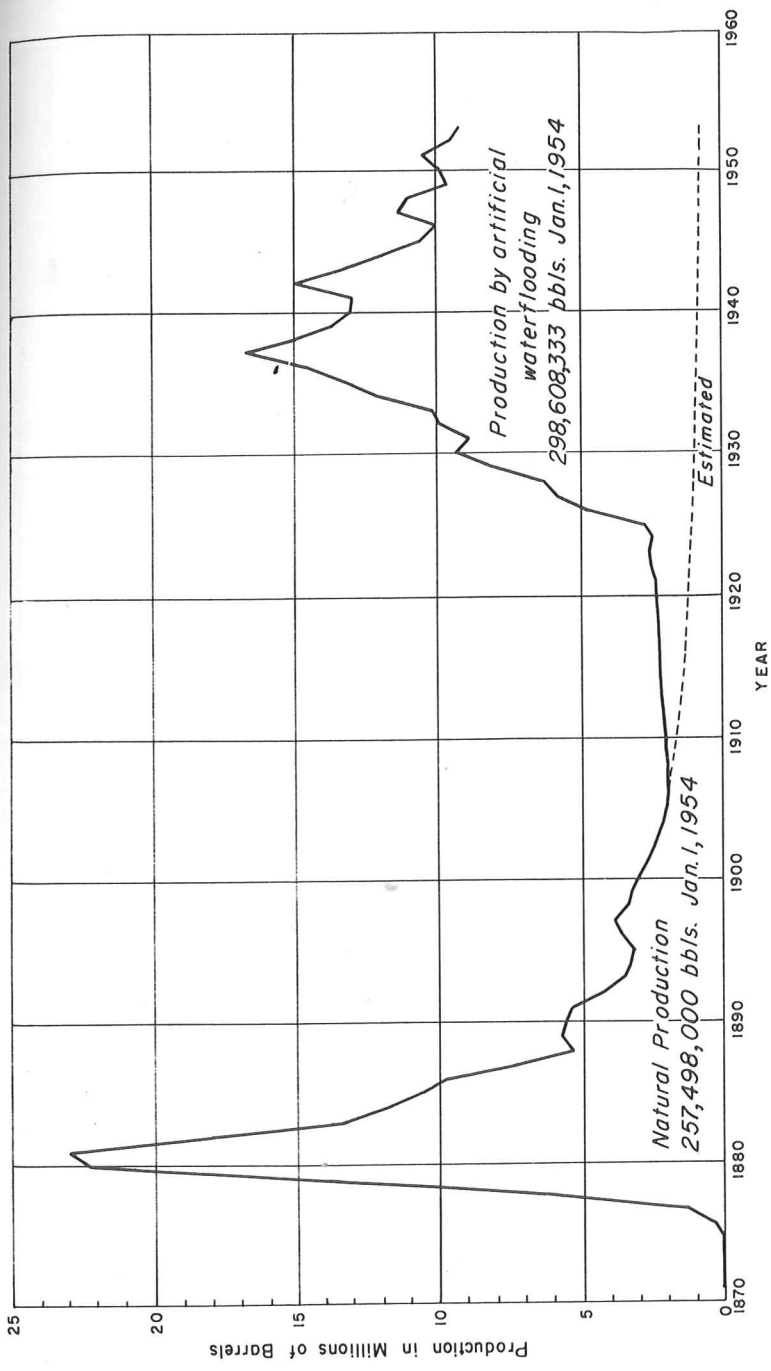


Fig. 5. Crude oil production curve of the Bradford district, Pa. & N.Y.
Music Mt. field excluded

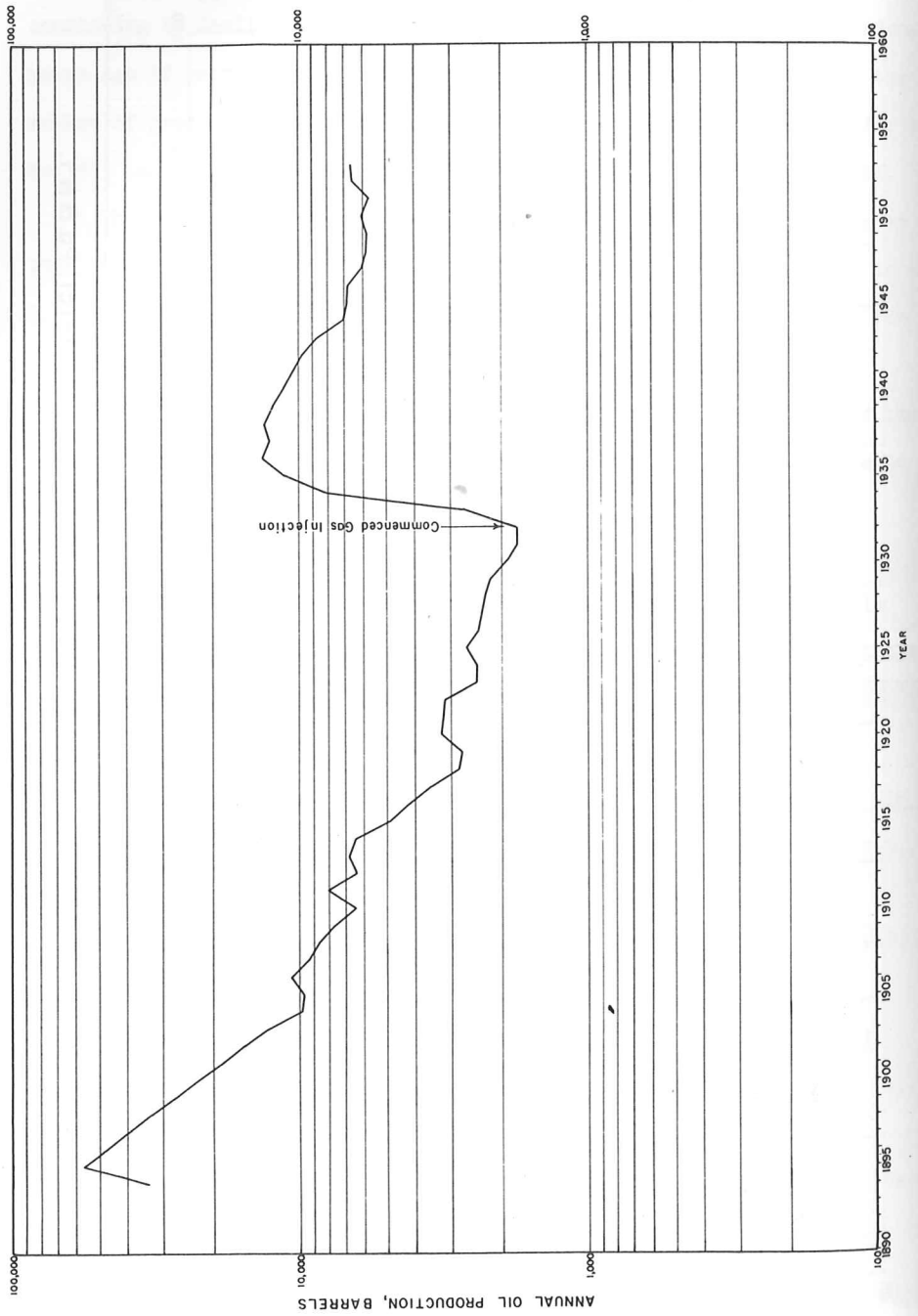


Fig. 6 Production history of Wallace Heirs lease, McDonald field

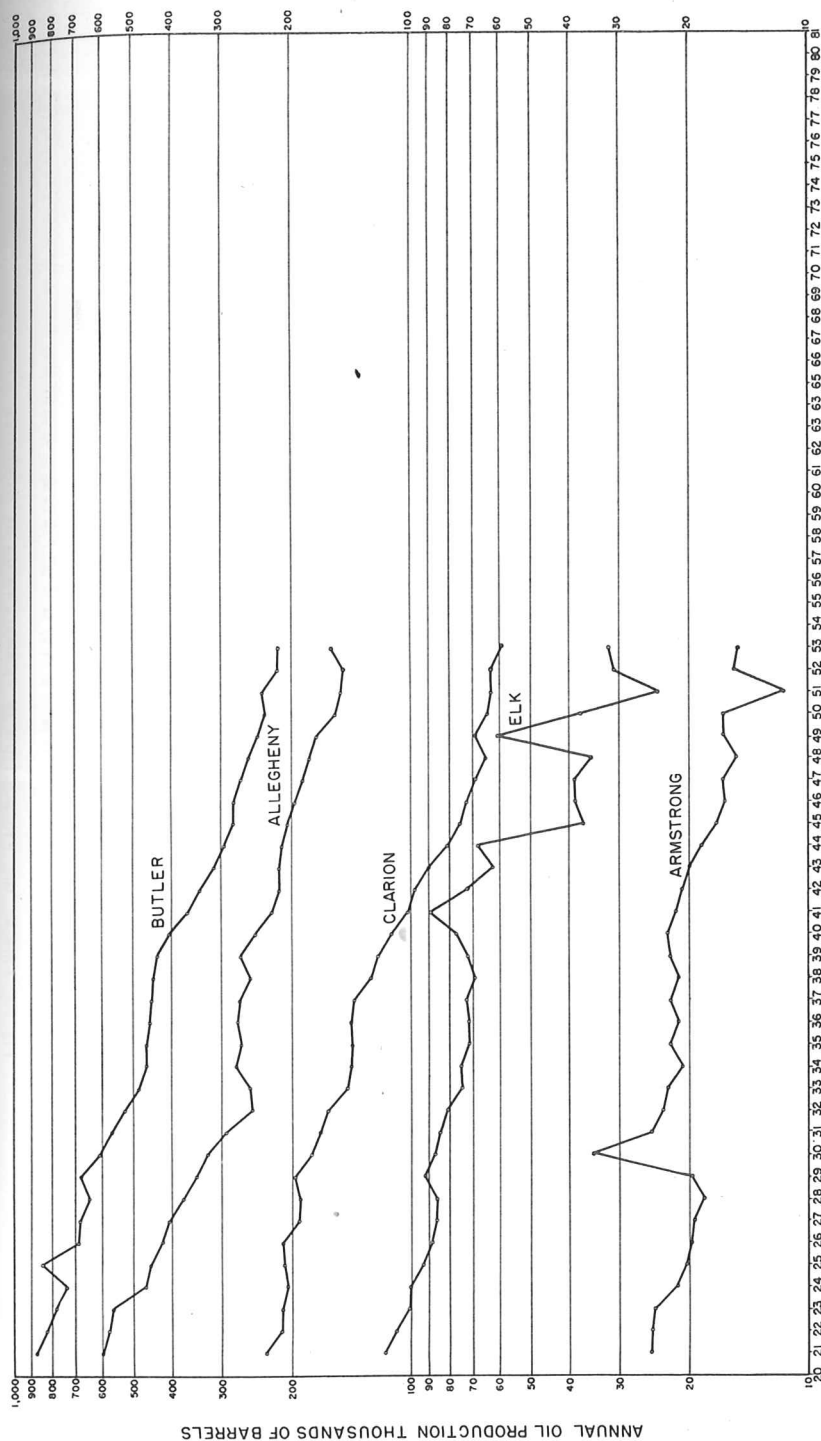


Fig. 7a ANNUAL OIL PRODUCTION IN PENNSYLVANIA BY COUNTIES

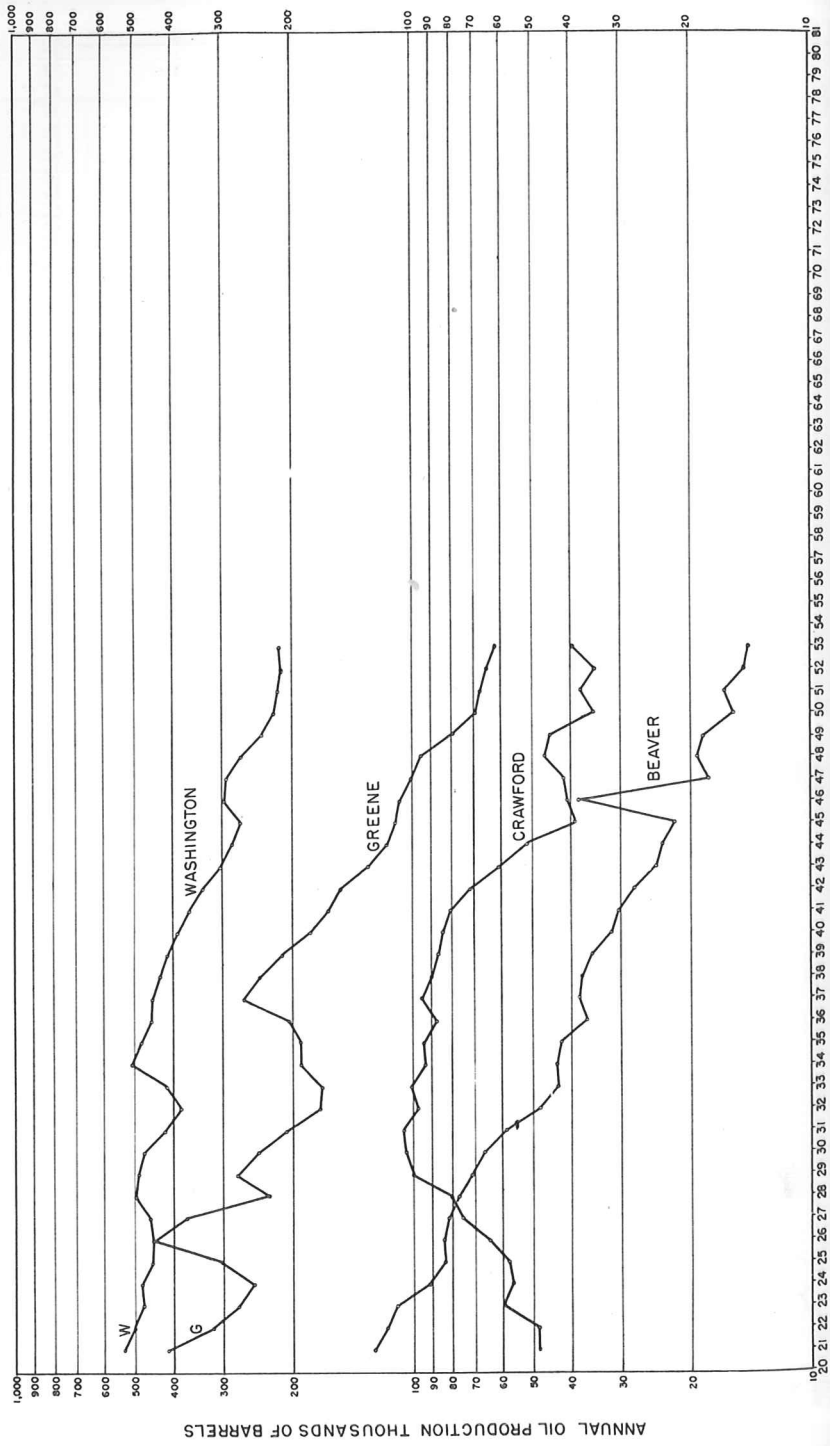


Fig. 7b ANNUAL OIL PRODUCTION IN PENNSYLVANIA BY COUNTIES

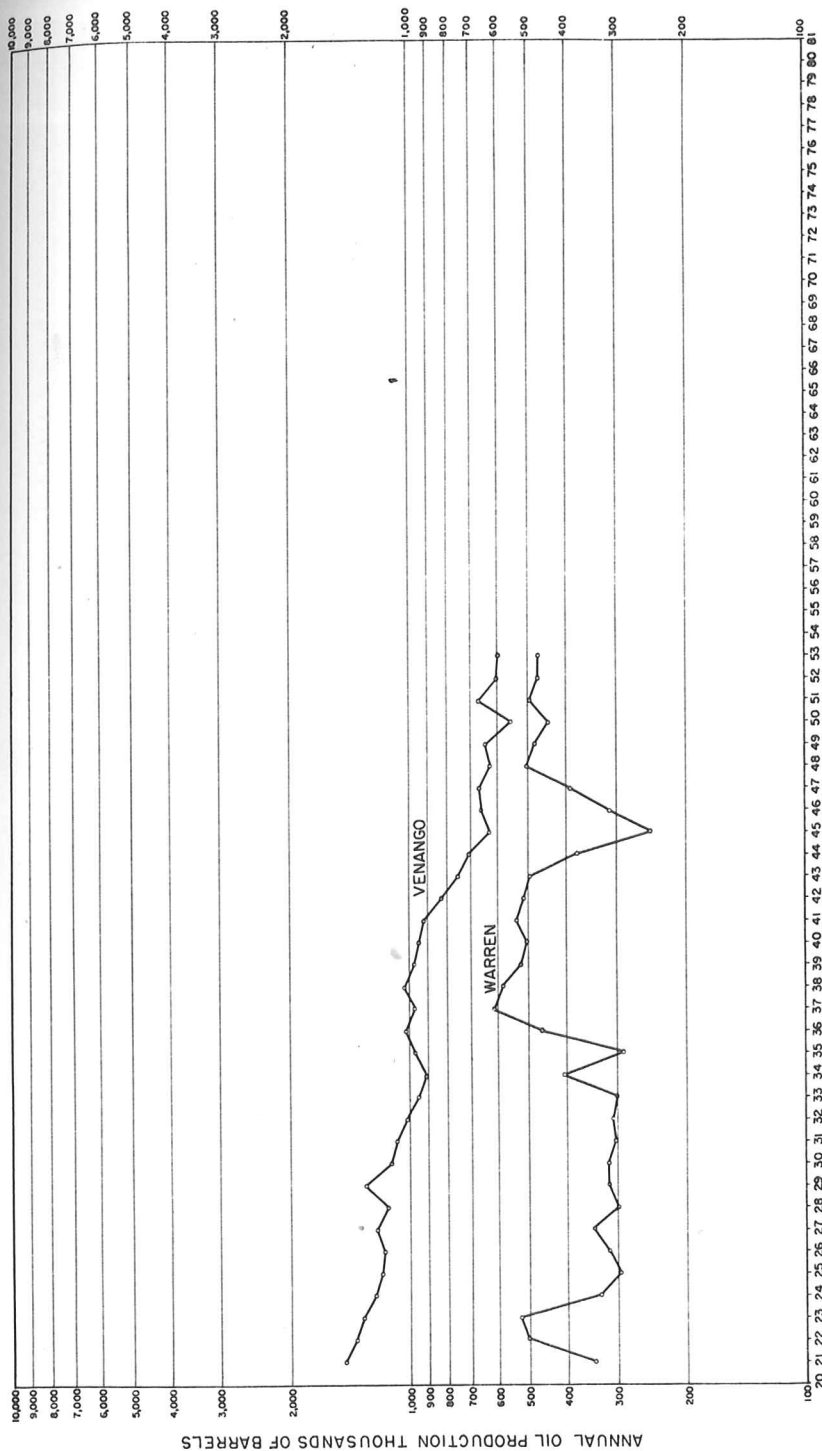


Fig. 7c ANNUAL OIL PRODUCTION IN PENNSYLVANIA BY COUNTIES

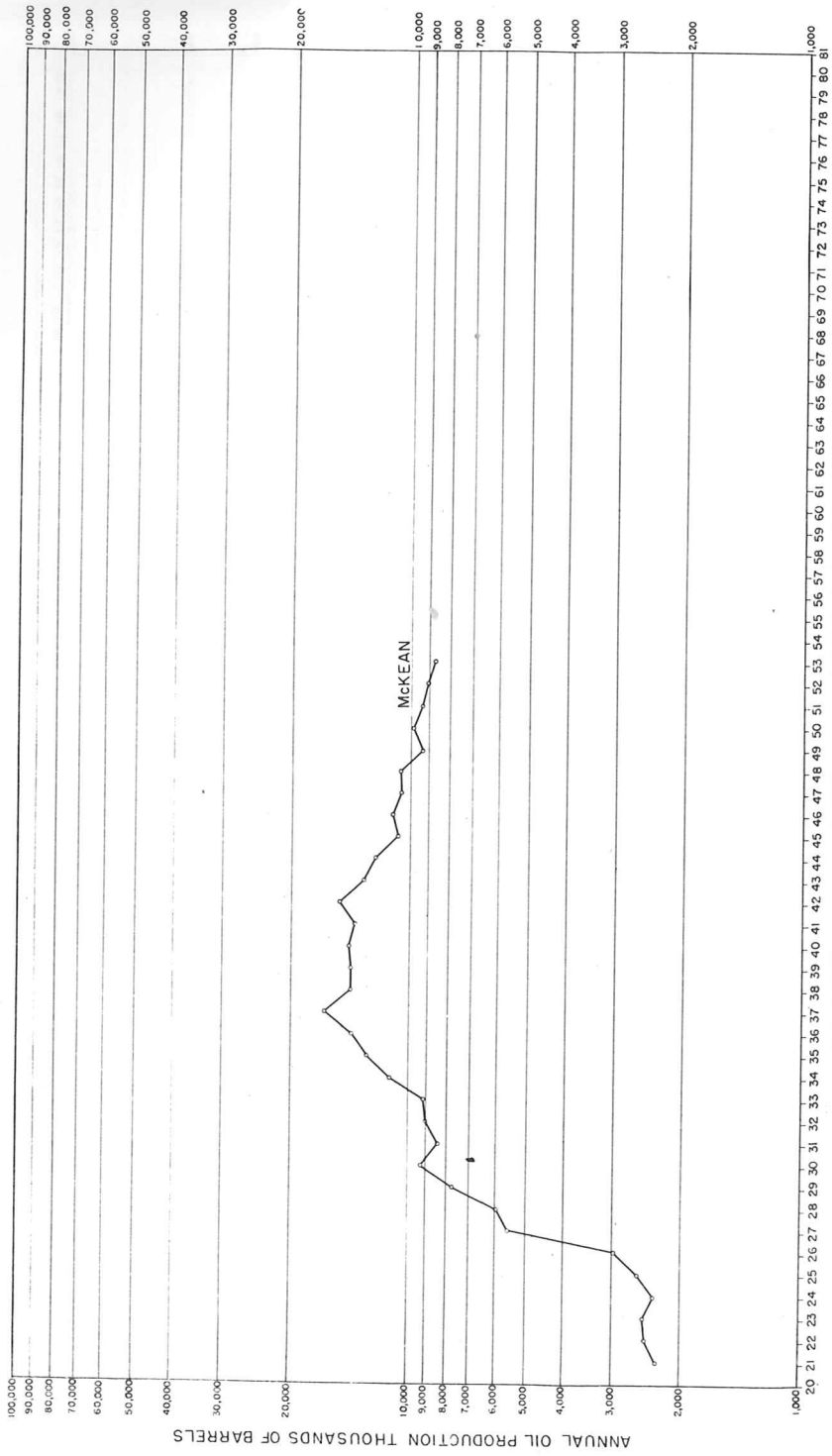


Fig. 8 ANNUAL OIL PRODUCTION McKEAN COUNTY, PENNSYLVANIA

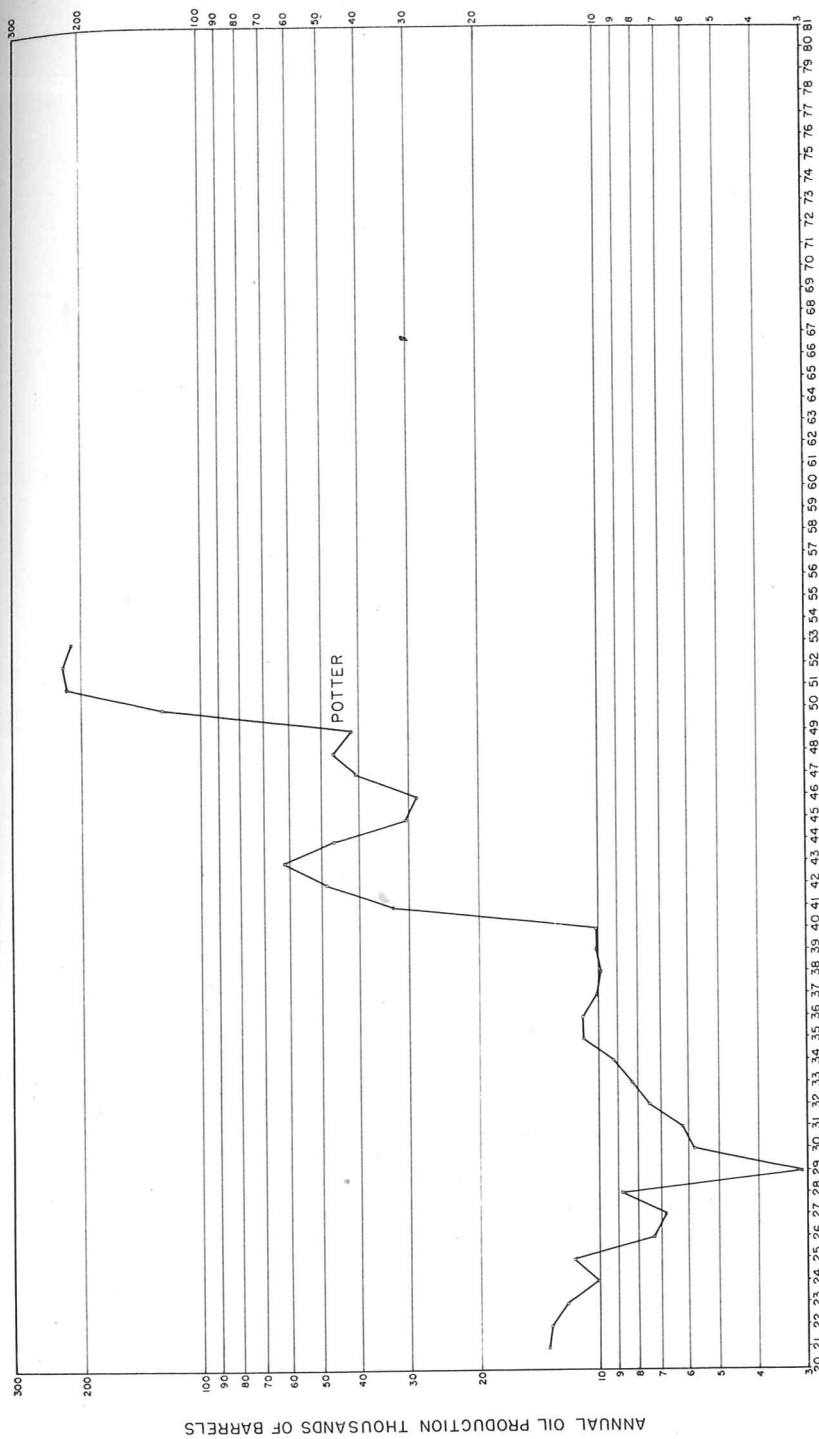


Fig. 9 ANNUAL OIL PRODUCTION POTTER COUNTY, PENNSYLVANIA

Exhibit 3
to

Supplemental Declaration of Douglas E. Kuntz

RI bureau of mines
report of investigations **6917**

THEORETICAL AND FIELD WATERFLOOD
PERFORMANCE, KANE SAND,
KANE OILFIELD, ELK COUNTY, PA.

By Leo A. Schrider, John R. Duda, and Harry R. Johnson

SOUTH PENN OIL CO.
BRADFORD, PA.
ENGINEERING DEPARTMENT



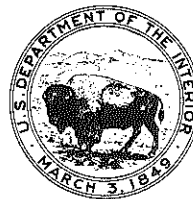
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF MINES

1967

THEORETICAL AND FIELD WATERFLOOD PERFORMANCE, KANE SAND, KANE OILFIELD, ELK COUNTY, PA.

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* * * * * report of investigations 6917



UNITED STATES DEPARTMENT OF THE INTERIOR
Stewart L. Udall, Secretary

BUREAU OF MINES
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THEORETICAL AND FIELD WATERFLOOD PERFORMANCE,
KANE SAND, KANE OILFIELD, ELK COUNTY, PA.

by

Leo A. Schrider,¹ John R. Duda,¹ and Harry R. Johnson²

ABSTRACT

A prediction for oil recovery from a pilot waterflood in the Kane oil-field, located in Elk, Forest, and McKean Counties, Pa., was made and compared to actual field performance.

Water-injection and production histories, well logs, other field data, and results from laboratory tests of core material were used in this analysis. Performance of the pilot waterflood, initiated in January 1963, was predicted using a modified Craig, Geffen, and Morse calculation technique. Maximum recovery from this low permeable, preferentially oil-wet formation was predicted to be about 22,500 barrels of oil after 300,000 barrels of water had been injected into the pilot waterflood area. After additional field data were collected it became necessary to reevaluate the pilot waterflood area. The gas saturation prior to the waterflood was estimated to have been 20 percent, based on an assumption regarding the required volume of water injected to initiate oil production. In view of the actual field performance, a gas saturation of 13 percent is indicated. When this gas saturation and the method originally proposed by Craig and others are used, the predicted results are more representative.

In December 1965, field performance was further analyzed using a hyperbolic-decline curve as presented by Arps. Based upon this evaluation method, the pilot waterflood in the Kane sand should produce 37,000 to 42,000 barrels of oil with the injection of 300,000 barrels of water into the pattern. By continuing this secondary-recovery project to a reasonable economic limit, ultimate oil recovery may be as much as 50,000 to 55,000 barrels, or 129 to 142 barrels per acre-foot from 36.5 acres.

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INTRODUCTION

The Bureau of Mines is studying selected Appalachian area reservoirs to determine their susceptibility to secondary recovery. The objective of this work, which is detailed in an earlier report (25),³ is to increase the recovery of oil from known pressure-depleted reservoirs.

Recent reports dealing with the Kane oilfield, which was selected for study under this program, describe the reservoir data (7), a prediction for oil recovery from a pilot waterflood area (4), and a progress report of the field performance (12).

This report presents a complete study of the Kane sand project and compares the theoretical and actual field waterflood performance. Two wells were cored in the pilot waterflood area; one by the operator, Fords Brook Drilling Company, and the other by the Bureau of Mines. The core analyses, well logs, and field production data were used to predict the performance of this secondary-recovery waterflood project. Following 3 years of injection-production data, a comparison of the original prediction with the actual performance and subsequent reevaluation of the project was accomplished.

ACKNOWLEDGMENTS

The authors acknowledge the suggestions of Dr. E. T. Heck, consultant and vice president, Minard Run Oil Company, Bradford, Pa., and the cooperation of Mr. Knight Thornton, Thornton Producing Company, Wellsville, N.Y., who generously provided much of the data for this report. Recognition is also given to the Bureau of Mines Industry Technical Advisory Committee for their suggestions concerning this study.

GEOLOGY

The Kane oilfield, approximately 12 miles long and 1 mile wide, is located in parts of Elk, Forest, and McKean Counties, Pa. (fig. 1), along the northwestern flank (of the surface axis) of the Smethport anticline (17). The topography of the area is composed of broad, flat summits that slope gradually into narrow valleys (3). The maximum relief is about 400 feet.

Surface rocks on the summits belong to the Allegheny and Pottsville Series of the Pennsylvanian system, while outcrops along the major stream beds belong to the Pocono Group of the Mississippian system. These surface beds dip gently (2° to 3°) to the northwest from the western flank of the Smethport anticline. Gas is produced along the anticlinal axis, and oil is produced further down the structure along the northwestern flank.

Initial oil production was from the Nansen, Sackett, and Duhring pools which were discovered about 1881. Subsequent development combined these into the Kane oilfield. Drillers in the area correlated the Kane sand of this

³Underlined numbers in parentheses refer to items in the list of references at the end of this report.

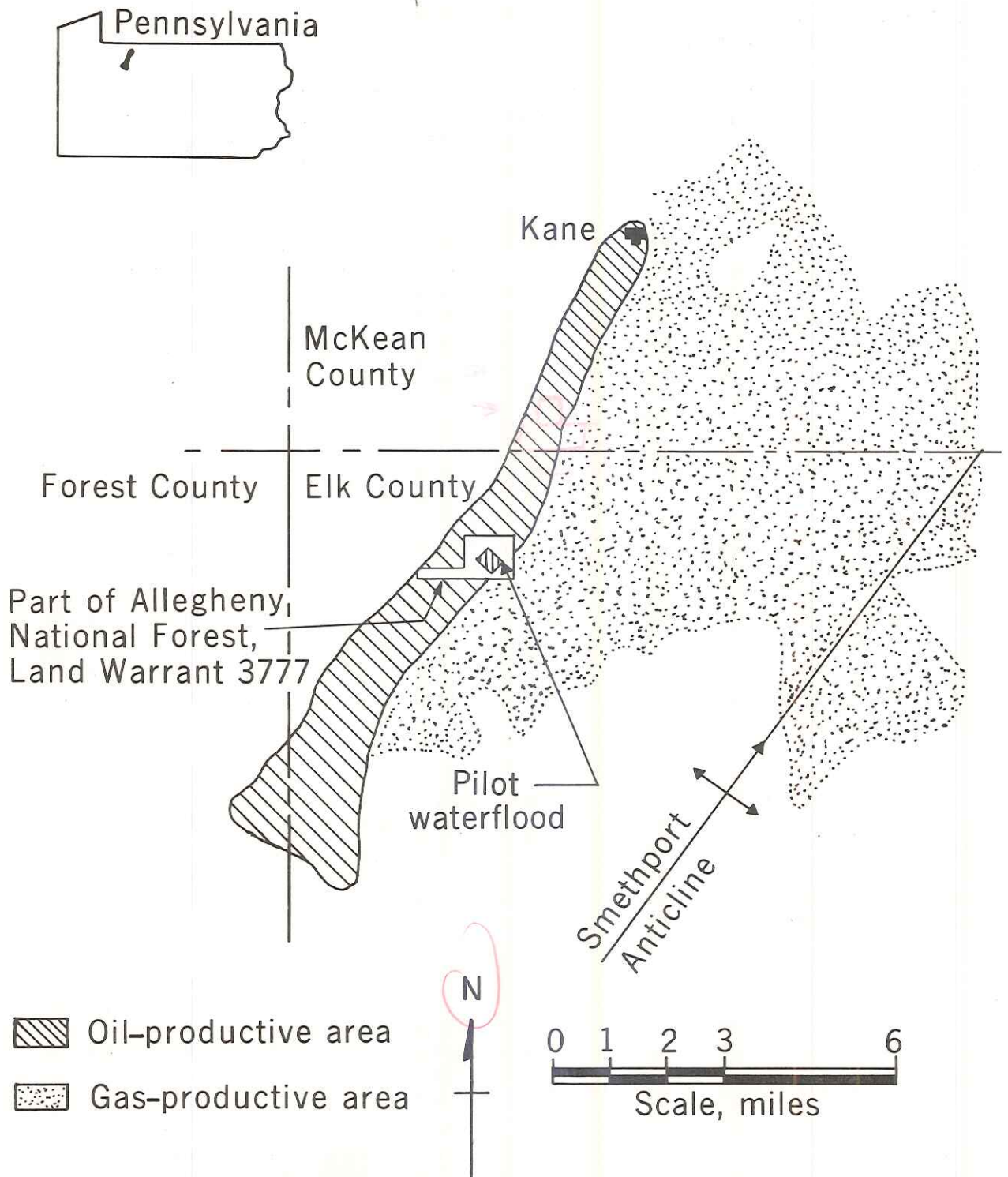


FIGURE 1. - Kane Oilfield, Highland Township, Elk County, Pa.

field with the Kane sand found in the Bradford District, McKean County. Fettke (14) later confirmed this correlation.

The Kane sand is in the Upper Devonian system at a depth of approximately 2,200 feet. The sand is gray to medium-brown in color, very fine- to fine-grained, slightly calcareous, shaly, and well cemented. Stratigraphically, it is approximately 120 feet below the Bradford Third sand, which is oil productive 25 miles to the north.

In 1928, an exploratory well drilled to 7,930 feet in the Kane field was located about 3 miles northeast of the pilot waterflood area. Fettke (14) recorded the geological formations at this location from sample cuttings, and his identification of the formations through the bottom of the Kane sand are shown in figure 2. The Upper Kane sand in figure 2 would be correlative with the Kane sand in the pilot waterflood area.

LEASE HISTORY AND DEVELOPMENT

Published records (20) show that the first successful oil well in the Kane field was drilled in 1881. Nine years later, the first well was drilled on the portion of Land Warrant 3777 covered in this report (fig. 1). By January 1891, 17 wells had been drilled; and by October 1900, the development was completed with an additional 52 oil wells on approximately a 10-acre spacing.

Each well was equipped with 300 to 500 feet of 5-5/8-inch casing, to exclude surface water, and was drilled through the producing sand. The wells were shot with approximately 100 quarts of nitroglycerin set 10 feet below the top of the pay sand and the completed open hole and were equipped with tubing, bottom-hole pumps, and sucker rods.

Lytle (20) reported that the initial production rates in the Kane field were as high as 100 barrels per day per well. The average production rates for the 10-year period, prior to waterflooding, were less than 1 barrel per day per well in Land Warrant 3777 with producing gas-oil ratios ranging from 200 to 500 scf per barrel. Estimates of cumulative oil production range from 6,000 to 14,000 barrels per well. No water was produced prior to initiation of the pilot waterflood.

Oil production from Land Warrant 3777 is shown in figure 3. Production records before 1904 were not available. The production curve for the period 1904 through 1934 is based on average yearly production for 5-year intervals. The sharp upswing in production in 1963 was due to the initiation of the pilot waterflood.

Original reservoir energy in this field is attributed to a combination solution-gas and gas-cap drive. Production of the gas cap and subsequent shrinkage has inactivated the gas-cap drive and permitted the oil to migrate up dip into the original cap area. Oil production from wells that originally produced only gas is evidence of this migration. Not all of this oil is recoverable by natural means since a portion will become residual oil in the invaded gas sand.

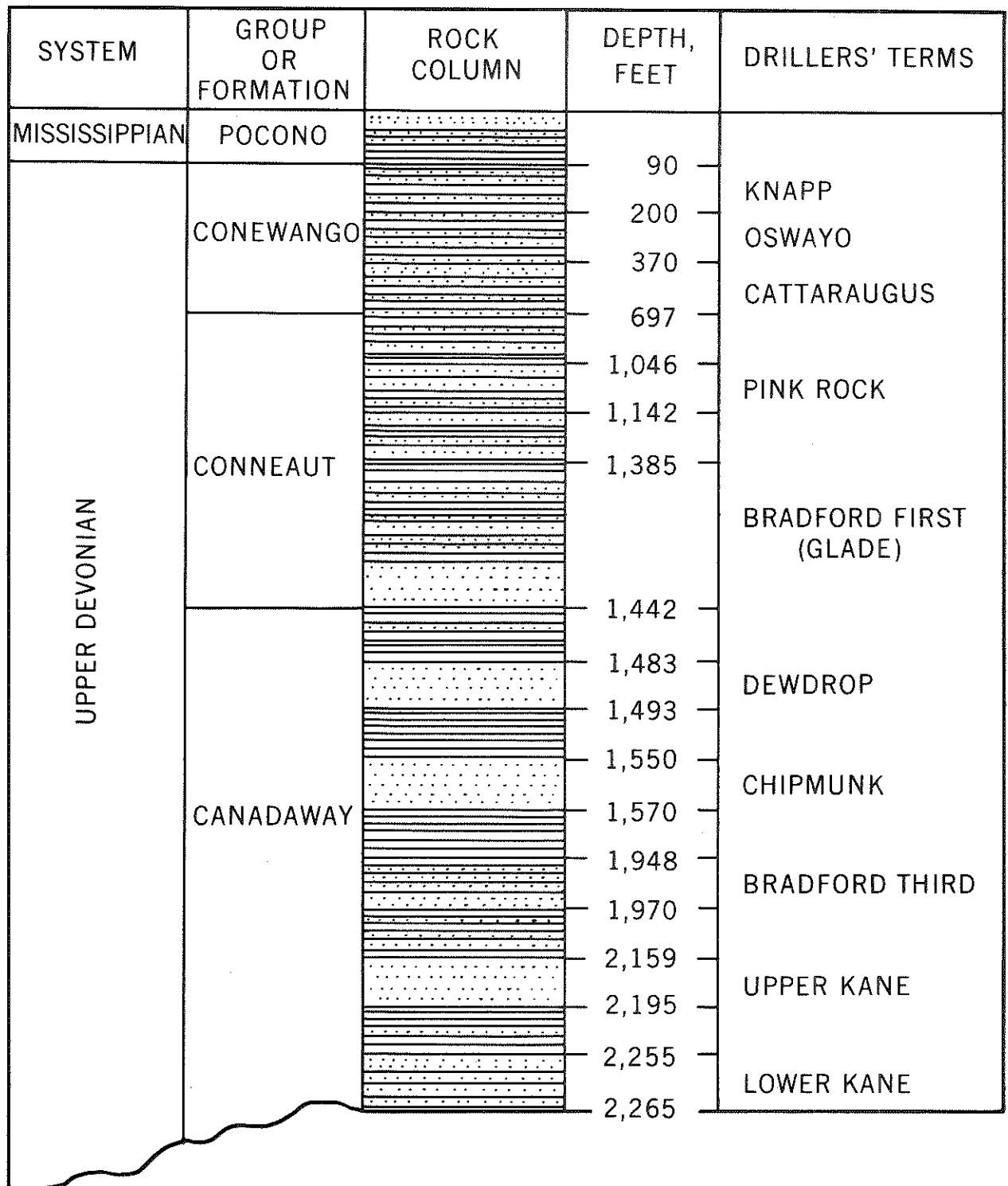


FIGURE 2. - Columnar Section of Geological Formations in the Kane Oilfield.

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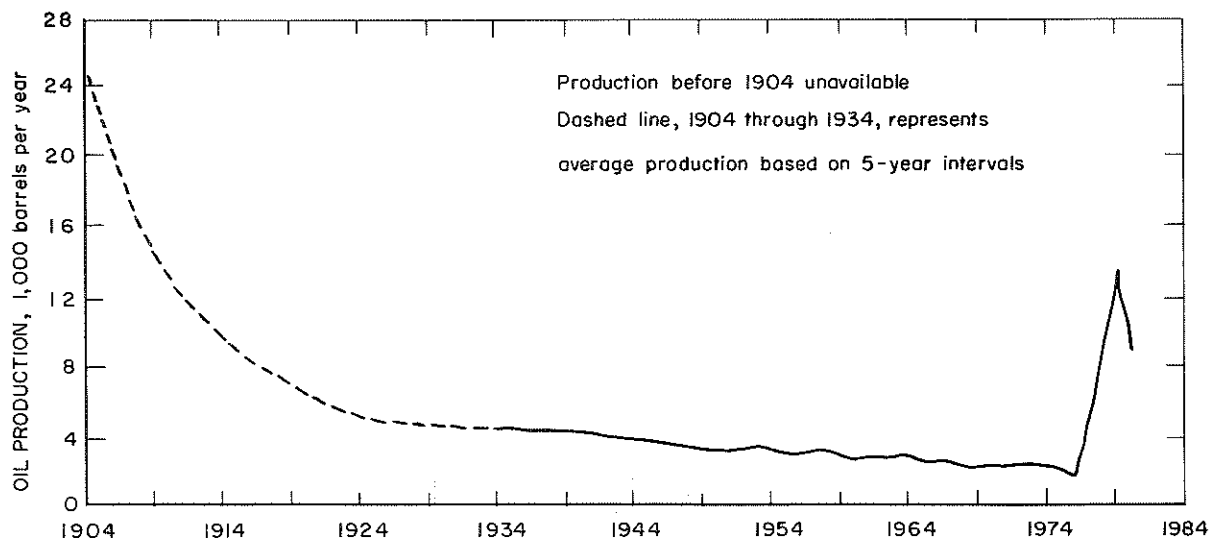


FIGURE 3. - Annual Oil Production, Part of Land Warrant 3777, Allegheny National Forest, Highland Township, Elk County, Pa.

DEVELOPMENT OF PILOT WATERFLOOD

The operator chose a location for the pilot waterflood where the wells, for the most part, were already drilled. The spacing and location of the wells selected for the test are shown in figure 4. This area consists of nine injection and four producing wells enclosing an area of 36.5 acres. Old producing wells were converted to injection wells and new producing wells were drilled and completed, resulting in four normal five-spot patterns.

All wells in the pilot project were subsequently hydraulically fractured, using 300 to 500 barrels of water and 9,000 to 12,000 pounds of sand. Treating pressures in the four new wells were about 800 psig less than in the old wells, due to the use of 3-inch tubing in the new wells as opposed to 2-inch tubing in the old. The average breakdown and treating pressure were about 4,500 and 3,000 psig, respectively. Before fracturing, the wells produced only a few gallons of oil per day; after fracturing, they produced a few barrels per day. The major increase in production was not experienced until fill-up occurred.

Water injection began in January 1963 when surface water was injected into the Kane sand at rates shown in table 1. This water was treated with a corrosion inhibitor and injected at a wellhead pressure ranging from 1,500 to 1,700 psig. In January 1966, a pressure of 1,600 psig was being used.

An unusually large amount of water was produced in June and July of 1963. (See table A-1 for complete pilot-flood injection-production history.) This large volume of water which broke through was attributed in part to fractures which the operator believed existed between injection and production wells. This was later confirmed in August 1963 when the operator injected slugs of fluorescein dye into the injection wells. The extremely short time (1 to 3 days) required to produce the injected dye confirmed the existence of

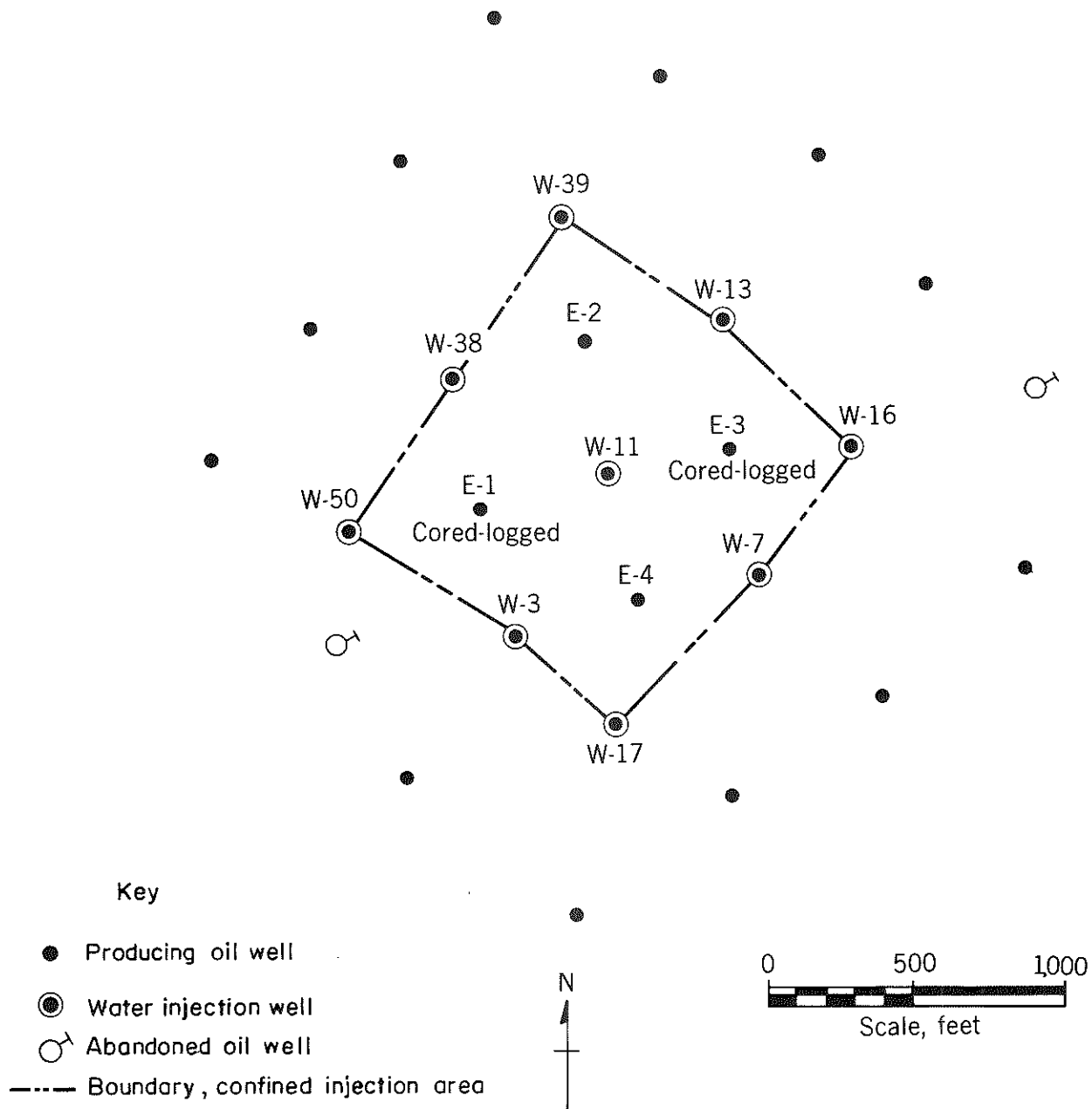


FIGURE 4. - Pilot-Flood Area and First-Line Offset Wells.

fractures or near-miss fractures. The application of this test and additional tracer tests conducted by the Bureau of Mines are discussed later in this report.

TABLE 1. - Initial water-injection rates

Injection well	Month of initial injection (1963)	Rate of injection in April 1963, average bbl per day
W-16.....	....January....	81
W-17.....	.....do.....	110
W-39.....	.....do.....	20
W-50.....	.....do.....	58
W-7.....	....February....	87
W-13.....	.....do.....	79
W-38.....	.....do.....	49
W-3.....	....March.....	111
W-11.....	....April.....	144

CORING AND LOGGING OPERATIONS

Producing wells E-1 and E-3 (fig. 4) were cored and logged. Well E-1 was cable-tool cored using dextrose water as the drilling fluid and well E-3 was rotary cored with air. Electrical and nuclear logs were obtained from both wells.

A diamond air-rotary core with a 3-1/2-inch diameter was taken from well E-3 in November 1962. A total of 35.5 feet of Kane formation was cored, but only 23.7 feet of core was recovered; the remainder (11.8 feet) was drilled up during coring operations. While the core was being removed from the barrel, 13.1 feet of it fell through the derrick floor and could not be placed in proper sequence after it was recovered. Therefore, the core analysis for well E-3 is based on lithology and is shown in table A-2.

The Kane sand was also cored in well E-1 with a cable-tool core barrel using dextrose water. This core was taken in September 1962 and was analyzed by a commercial laboratory. Results of the core analysis for E-1 are shown in table A-3. The top of the Kane sand was encountered at 2,314.3 feet in well E-1 and the bottom was encountered at 2,350.4 feet, resulting in a gross sand thickness of 36.1 feet.

At the completion of coring operations, wells E-1 and E-3 were logged using a low water-loss mud. The series of well logs used to evaluate well E-3 is shown in figure 5.

Electrical logs were run through the Kane sand in all producing wells (E-1 through E-4) and were used to evaluate and correlate this sand throughout the pilot waterflood area. Figure 6 shows a diagram of the resistivity logs and the excellent correlation that exists between the producing wells. All of the logs indicate that the Kane sand is approximately 36 feet thick. These electric logs and cores from wells E-1 and E-3 also show that the sand is heterogeneous with a significant amount of shale interbedding. Consequently, all of the formation cannot be considered floodable or effective sand. The well logs indicate further that approximately 16 feet of the formation is shale. These shale streaks separate the remaining 20 feet of formation into thin sand

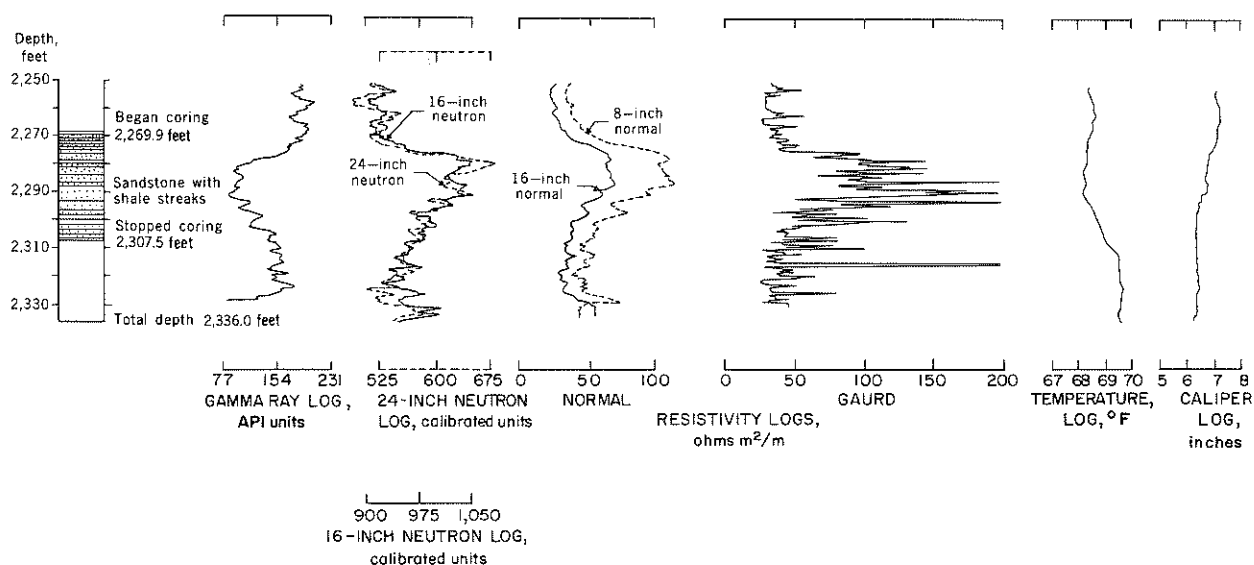


FIGURE 5. - Well Logs for Well E-3.

lenses. Fracturing this interbedded section by the method previously described has contributed materially to the success of this waterflood.

CORE ANALYSIS

Only 60 percent of the core was recovered from well E-3, thus the sequence of formation characteristics is undistinguishable in this well. This core analysis, therefore, cannot be used to evaluate the sand with any degree of reliability. In well E-1, however, 95 percent of the core was recovered. Approximately 96 percent of the total injection capacity of well E-1 is contained in the sand intervals with air permeabilities above 1 md. For all practical purposes, the total of these intervals (10.6 feet) is the effective sand thickness. The weighted-average air permeability of this effective sand is 4.4 md. Table 2 summarizes the core and log analyses of wells E-1 and E-3. Core analysis procedures were described in a previous report (25).

TABLE 2. - Results of core and log analyses, Kane sand

	Well E-1		Well E-3		Average
	Core	Log	Core	Log	
Oil saturation.....percent pore volume	30.4	-	27.0	-	28.7
Water saturation.....percent pore volume	11.9	14.0	8.9	13.4	¹ 13.2
Porosity.....percent	10.8	10.3	12.1	11.0	¹ 10.8
Air permeability.....millidarcy	4.4	-	5.7	-	² 4.4
Effective sand thickness.....feet	10.6	-	-	-	10.6

¹Based on the average of core and log analyses of well E-1 and log analysis of well E-3.

²Based on results of core analysis of well E-1.

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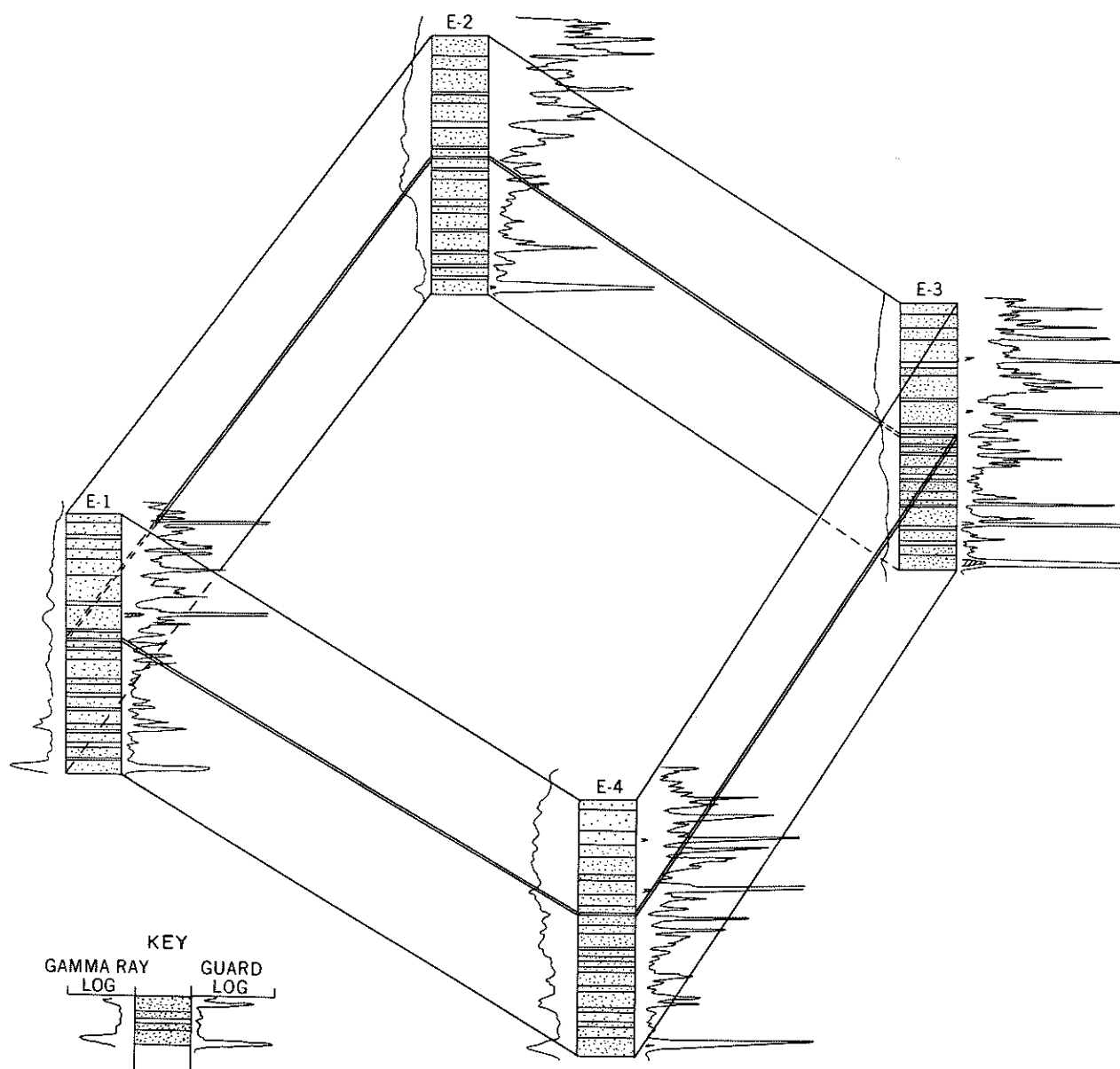


FIGURE 6. - Diagram of Sand Development in the Pilot Waterflood Area.

Wettability and Relative Permeability

Representative core samples of the Kane sand were tested to determine preferential wettability. Five pairs of adjacent samples were chipped from the fresh core obtained from well E-3. One sample of each pair was immersed in oil and the other in distilled water. The initial rate of water or oil imbibition into each sample (21) and the total amounts imbibed were determined. The results are given in table 3. The Kane sand samples imbibed both oil and water; however, oil was imbibed much faster than water and also in greater

volume. Water will not enter the smaller pore channels of a preferentially oil-wet system (21) because capillary forces causing imbibition are greater for oil than for water. This behavior was exhibited by the samples taken in the Kane sand, indicating it to be a preferentially oil-wet system.

TABLE 3. - Results of imbibition tests

Sample	Oil imbibed		Water imbibed	
	Initial rate, pore volume per hour	Total, fraction of pore volume	Initial rate, pore volume per hour	Total, fraction of pore volume
1.....	0.59	0.30	0.34	0.07
2.....	.73	.48	.64	.15
3.....	.95	.66	.52	.25
4.....	1.39	.76	.20	.15
5.....	1.35	.54	.81	.37
Average..	1.00	.55	.50	.20

Rock wettability can also be determined by comparing measured pore volumes of samples saturated with helium, oil, and water. It would be expected that saturation of samples with water would be less complete than with oil in an oil-wet system (9). For this test, 13 samples from the effective sand interval were saturated with oil, and 13 adjacent samples were saturated with brine. Helium pore volumes, determined before saturation, were used as the standard for comparison of the pore volumes determined gravimetrically. Statistically, no difference existed between pore volumes measured by helium and those measured by oil saturation, indicating that oil had completely wet the system. However, the average pore volume of the 13 samples determined by water saturation was only 85 percent of the average pore volume determined by helium.

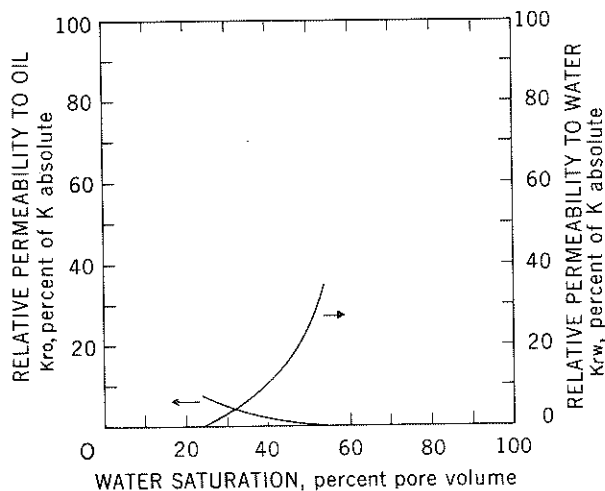


FIGURE 7. - Average Water-Oil Relative-Permeability-Ratio Curves for the Kane Sand, Well E-3.

The relative-permeability characteristics of a reservoir also reflect the effect of wettability (15). In a preferentially oil-wet system, oil flows near the surface of the sand grains and in the smaller pore channels, while water flows near the center of the larger pore channels. Since the flow of oil is more restricted than the flow of water in such a system, the relative permeability to water at residual oil saturation should be greater than the relative permeability to oil at residual water saturation. This characteristic of a preferentially oil-wet system is shown in the average water-oil relative-permeability curves (fig. 7) for two core samples from well E-3. The relative-permeability tests

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were performed using the procedure described by Loomis and Crowell (19). The individual curves were calculated using the technique described by Higgins (15):

where:

K_{rw} = relative permeability of the water at the residual oil saturation, percent of K absolute,

K_{ro} = relative permeability of the oil at the irreducible minimum water saturation, percent of K absolute.

The average relative permeability to water at residual oil saturation is 4.7 times greater than the relative permeability to oil at residual water saturation.

Gas-oil relative-permeability characteristics were also determined for the effective sand interval in well E-3. The average gas-oil relative-permeability-ratio curve of four samples is shown in figure 8.

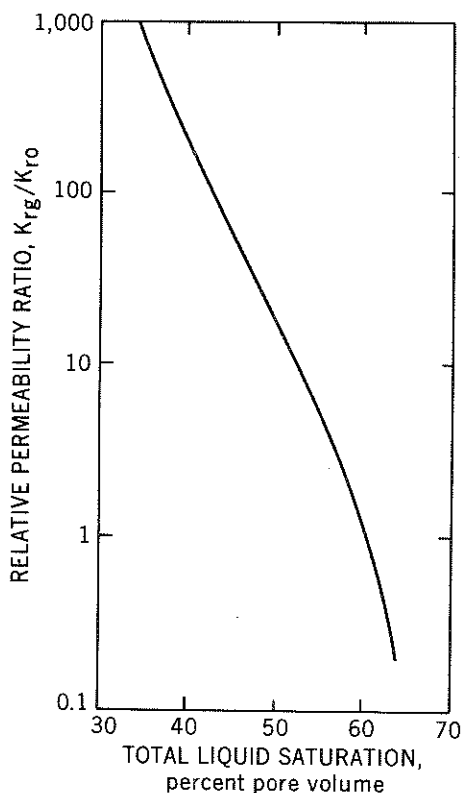


FIGURE 8. - Average Gas-Oil Relative-Permeability-Ratio Curve for the Four Samples of Kane Sand, Well E-3.

Fluid Saturations

The average water saturation determined by log and core analyses of well E-1 and log analysis of well E-3 was 13.2 percent (table 2). This water is immobile since water is not produced from the Kane sand.

The journal article published in August 1964 (4) predicted the oil recovery from the pilot waterflood area using an assumed gas saturation of 20 percent. (This prediction was necessarily based on several assumptions, and the assumed gas saturation was apparently too high.) The field data now indicate that an initial gas saturation averaging about 13 percent existed in the Kane sand reservoir. One reason for the difference between the actual and the predicted performance of this waterflood was the inability to establish fluid saturations by a material balance of the produced fluids, and another reason is the assumption made regarding the fill-up volume. The latter assumption will be discussed later in this report. Based on current knowledge, the oil saturation prior to initiation of the waterflood would have been 73.8 percent. The residual oil saturation from relative-permeability tests is 46.3 percent (fig. 7).

Reservoir-Fluid Properties

The Kane oilfield was almost completely developed before 1900; consequently, no analysis of the original reservoir fluids is available. A stock-tank sample of oil was taken from well E-1 in November 1962. The measured viscosity and specific gravity of the sample was 3.05 cp and 0.795, respectively, and the API gravity was 44.7°. All tests were made at the bottom-hole temperature of 80° F.

PREDICTION METHOD

The method originally employed to predict secondary recovery of oil from this area by waterflooding was that proposed by Craig, Geffen, and Morse with a modification in the injected volume of water required to initiate oil production (4). In the paper by Craig and others (10), it was assumed that all of the free-gas space within the confined area should be liquid filled before oil production begins. In preparing the Kane sand prediction, however, the authors assumed that only the gas space in the initially swept area should be liquid filled. Other authors (13, 23) state that all of the gas space must be liquid filled. It was therefore necessary to reevaluate the pilot waterflood prediction.

This reevaluation was made using a composite of the original method used by Craig and others and that proposed by Suder and Calhoun (24). The Suder-Calhoun technique, based on Darcy's radial-flow equations and a material balance of the injected fluid, was applied up to water breakthrough. This results in a realistic profile of water-injection rates until the beginning of the steady-state flow.

After water breakthrough, emphasis was placed on the method originally proposed by Craig and others. This method accounts for continued oil production from the invaded region through the use of the frontal-advance equation proposed by Buckley and Leverett (5) and modified by Welge (26). Also considered is oil production from the newly invaded region as the areal sweep efficiency increases with continual water throughput. The data required to perform these calculations are presented in table 4.

TABLE 4. - Data required to calculate pilot waterflood predictions

Oil viscosity.....	3.05 cp
Water viscosity at reservoir conditions.....	1.0 cp
Relative permeability characteristics.....	(See fig. 7)
Interstitial water saturation.....	13.2 percent pore volume
Gas saturation before water injection.....	13 and 20 percent pore volume
Total area flooded.....	36.5 acres
Thickness.....	10.6 feet
Porosity.....	10.8 percent
Absolute permeability.....	3.2 md
Distance between injection wells.....	635 feet
Effective wellbore radius.....	approximately 10 feet
Pressure at the sandface.....	2,500 psig
Pore volume of confined area.....	324,000 bbl
Oil formation-volume factor.....	1.05
Assumed water-injection rate after January 31, 1966.....	11,600 bbl per month

PREDICTED AND ACTUAL WATERFLOOD PERFORMANCE

Figure 9 is a plot of the dimensionless oil production-water injection rate as a function of the cumulate water injected. The predicted performance for gas saturations prior to waterflooding (13 and 20 percent) is compared to the actual field performance of the waterflood. This method of presenting the data was chosen so that conditions controllable by the operator, such as injection rate and pump failure, do not enter into the analysis. The curves were developed by dividing the instantaneous oil-production rate by the instantaneous water-injection rate for any given amount of cumulative water injected. For example, in July 1964 the cumulative water injection was 325,155 bbl (table A-1). The monthly oil-production rate (1,206 bbl) was divided by the monthly water-injection rate (15,061 bbl) to yield a value of 0.08 which is then plotted on figure 9 versus the cumulative water injected (325,155 bbl).

It is readily apparent from figure 9 that the original estimated gas saturation of 20 percent (4) yields low production-rate values. This is further confirmed in figure 10 which indicates a low cumulative oil recovery as compared to the actual recovery.

The difference between the originally predicted results (using 20-percent gas saturation) and the actual field data is believed to be due to an assumption made in developing the original prediction. It was assumed that only the gas space in the initially swept portion of the reservoir should be liquid filled in order to initiate response at the producing wells. The theoretical minimum gas saturation that existed in the reservoir was then established by noting the volume of water injected until a response at the production wells

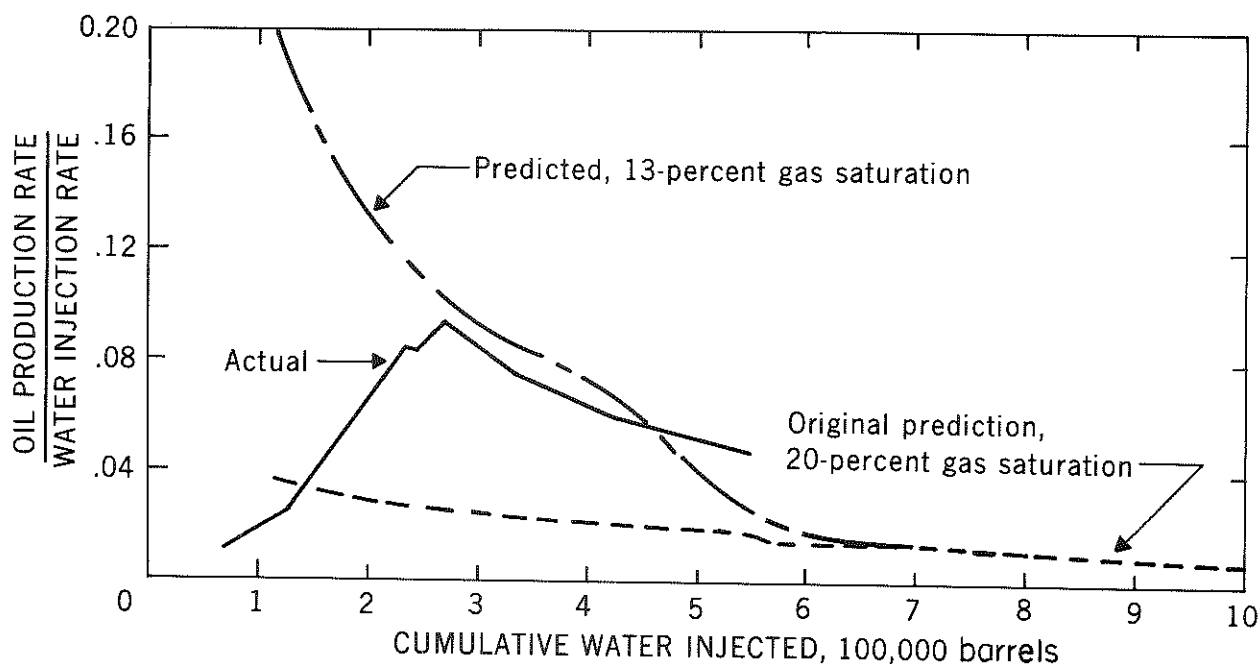


FIGURE 9. - Predicted and Actual Field Performances, Pilot Waterflood, Kane Oilfield, Elk County, Pa.

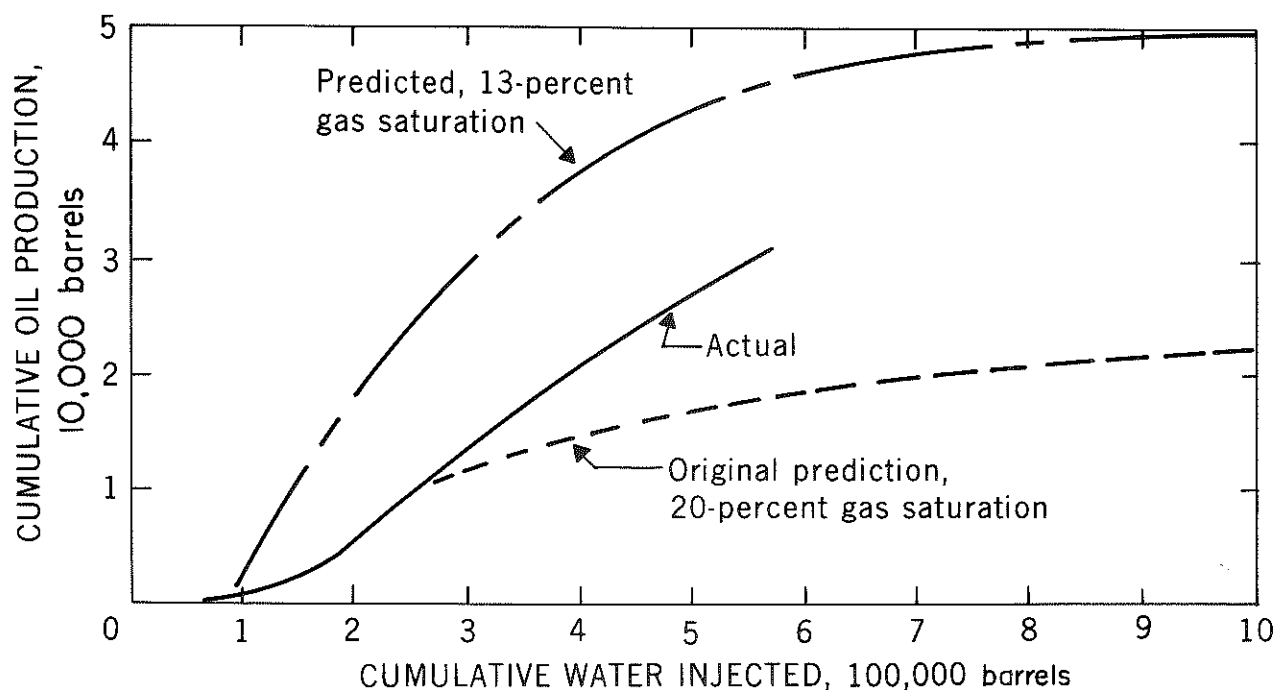


FIGURE 10. - Cumulative Oil Recovery Using Predicted and Actual Field Results, Pilot Waterflood, Kane Oilfield, Elk County, Pa.

was observed. The pilot waterflood indicated this response by June 1963, and a gas saturation of approximately 20 percent was calculated. When these same field data are viewed under the assumption that all of the gas space within the confined area must be liquid filled, an initial gas saturation of about 13 percent was calculated. Although a gas saturation of 13 percent is now accepted as approximately correct, the results of prediction calculations using this figure still do not match actual performance. In making the calculations, the Kane sand was assumed, for purposes of simplification, to consist of a single, homogeneous layer. Such an assumption is weak for several obvious reasons. Because this sand is highly stratified, the injected water can move through the sand at varying rates depending on the permeability of the individual strata, and breakthrough will not occur simultaneously in all layers. Perhaps a more important factor in the discrepancy between actual and predicted results is the fact that the wells were hydraulically fractured during completion. Some of these fractures provided almost direct communication between injection and production wells. As a result, a very early water breakthrough was experienced and a percentage of the injected water has done little or no work in displacing oil. The areal sweep efficiency and displacement efficiency have improved with continued injection, and production rates have held up well. Ultimate recovery from the pilot waterflood may therefore approximate the predicted ultimate recovery (fig. 10).

PRODUCTION-DECLINE ANALYSIS

Oil production from the Kane sand pilot waterflood has declined since April 1964. Various methods and mathematical relationships were investigated to evaluate this decline. Exponential, hyperbolic, and harmonic declines were utilized for fitting the production data.

Before analyzing the different types of decline curves, the following assumptions must first be made: (1) The production is at capacity; (2) the pressure is constant or proportional to the amount of remaining oil; and (3) the wells will produce under stabilized conditions, meaning the drainage area should have reached a maximum constant size. The various types of decline curves analyzed are as follows.

Exponential decline, also called semilog or constant-percentage decline, is characterized by the fact that the drop in production rate per unit of time is proportional to the production rate. The simplest method of recognizing exponential decline is the loss-ratio procedure (16), where the loss ratio is constant and defined as the production rate divided by the change in production rate per unit time.

The hyperbolic or log-log type of decline can be recognized when the difference of the loss ratios are constant or nearly so. Differences of consecutive initial values in the loss ratio is sometimes referred to as the b exponent (22), which can vary between 0 and 1. When b is 0 the curve is exponential, and when b has a value between 0 and 1 the curve is hyperbolic. There is also the special case when the b exponent equals 1. This is known as harmonic decline.

The theory of production decline curves is relatively simple, but fitting the production data to these mathematical techniques is considerably more difficult. For the Kane sand production, the calculated loss ratios were not constant nor could a constant difference of loss ratios, or b values, between 0 and 1 be found.

The inability to establish an exponent b indicates the inaccuracy of estimating from a short decline period (6); however, even more errors may exist in an oil reservoir that is being waterflooded. The Kane sand, as for most waterfloods, consisted of a period of fill-up and then a period during which the oil-production rate responded to water injection. After the peak oil-production rate was attained, the oil-production rate started to decline as the flood reached maturity. During this time, the water saturation and relative permeability to water increased while the oil saturation and relative permeability to oil decreased. The oil-production decline, however, may or may not be a direct function of time (18); although at all times it is a function of the volume of water injected. Therefore it should be emphasized that true decline for secondary waterfloods seldom exists because water injection, and thus oil production, is subject to the control of the operator (18).

Since the production decline for the Kane sand did not fit the standard techniques, an alternate method was used. Arps (1) calculated the range of

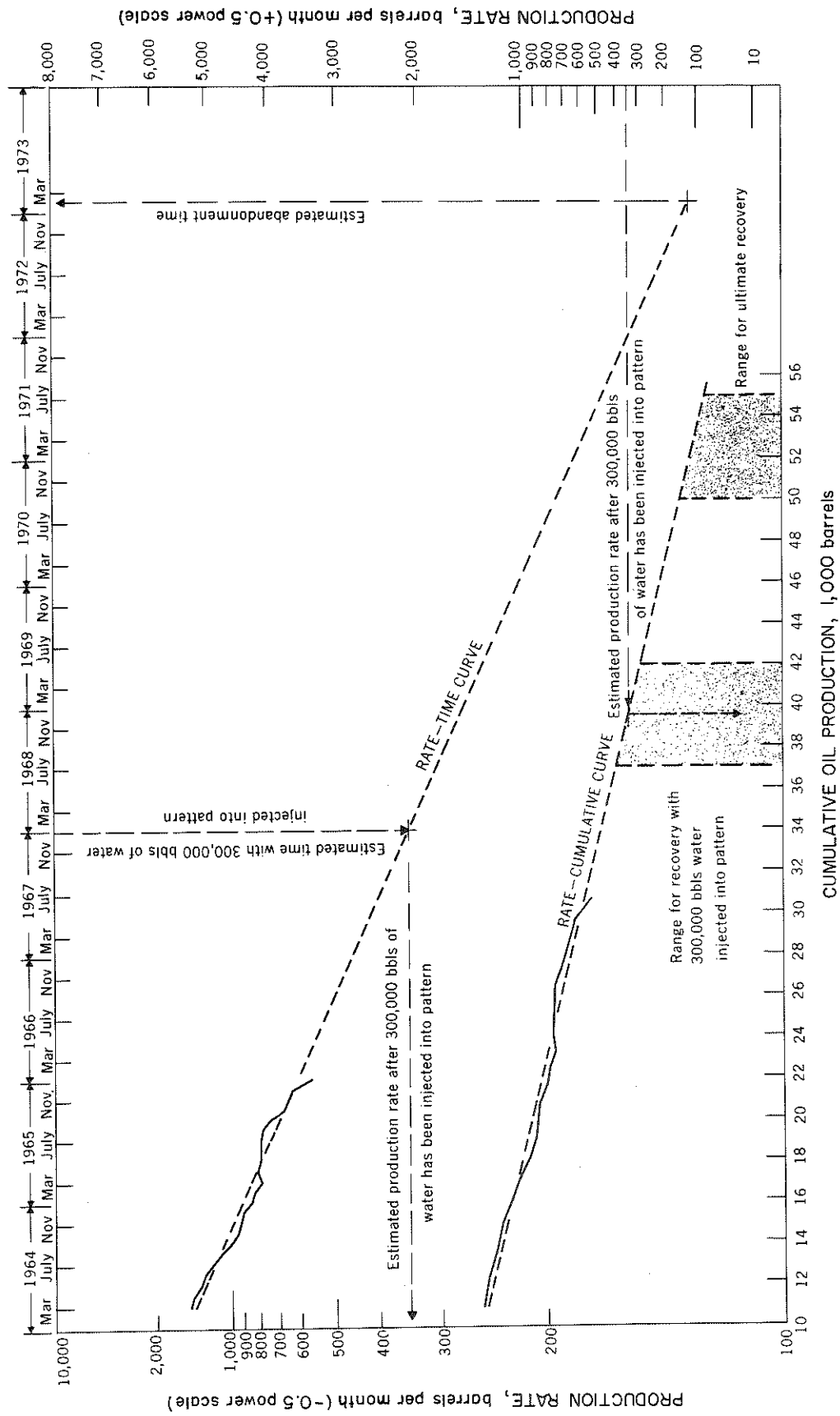


FIGURE 11. - Straight-Line Projection of Hyperbolic Decline (Exponent $b = 0.5$), Pilot Waterflood, Kane Oilfield, Elk County, Pa.

most b exponent values from data assembled by Cutler (11). According to these calculations, the value of the b exponent in the majority of cases appears to be between 0 and 0.5. A trial and error method (1) was then used on the Kane sand decline data. A b exponent of 0.5 was found to best approximate a straight line to the Kane sand production data. The hyperbolic-decline curve, as presented by Arps, was then derived. The results of this mathematical technique are shown graphically in figure 11.

As indicated, a recovery of 37,000 to 42,000 barrels of oil is expected if 300,000 barrels of water is injected into the pattern (this corresponds to about 675,000 barrels of cumulative water injected). If the flood is continued to a production rate of 1 barrel per day per well, an additional 13,000 barrels of oil may be produced, or a total of 50,000 to 55,000 barrels (129 to 142 barrels per acre-foot) may be recovered. By using a similar economic limit and the prediction described earlier, an ultimate oil recovery of 45,000 barrels would be calculated.

Figure 11 can also be used to estimate the cumulative oil production at a particular time. Suppose, for example, that an estimate of cumulative oil production to January 1968 is needed. The first step is to estimate the production rate for that time from the rate-time curve using the scale on the left of figure 11. For January 1968, the rate indicated on the figure is an

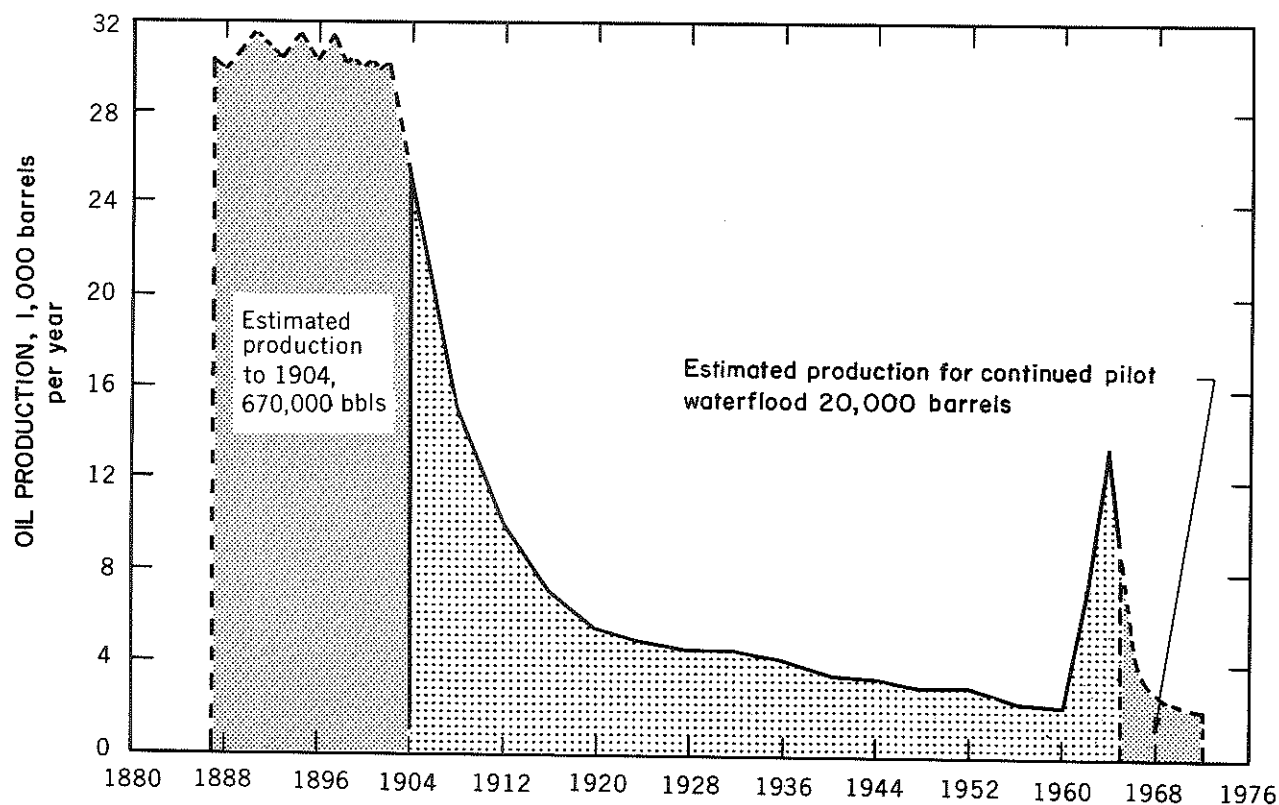


FIGURE 12. - Production History and Prediction of Future Performance, Pilot Waterflood, Kane Oilfield, Elk County, Pa.

estimated 350 barrels per month. This rate value is then transferred to the right-hand scale on the figure and extrapolated to the rate-cumulative curve. As shown, the predicted cumulative production for January 1968 is 39,500 barrels. Inherent in any estimate from this figure is the assumption that the operator will continue to inject water at about the current rate of 11,600 bbl per month.

Figure 12 illustrates the cumulative history of Kane sand oil production from Land Warrant 3777 in the Allegheny National Forest. Oil recovered through January 1966 by primary-recovery (2) and secondary-recovery methods is estimated to be 1,047,000 stock-tank barrels, and oil recovery from continued water injection into the pilot waterflood area should be an additional 20,000 barrels.

DISCUSSION OF RESULTS

The likelihood that communicating fractures existed in the formation was confirmed by the operator in August 1963 when fluorescein-dye tracers were injected. Further tracer work was initiated in January 1965 by the Bureau of Mines (8) to reconfirm that fractures or near-miss fractures existed in the Kane sand reservoir. It was also hoped that, if they did exist, the percentage of water going through the fractures could be determined.

The response of these later tracer tests was not very encouraging. A small amount of the tagged water was produced 4 days after the tracer was injected. Although this definitely confirmed that a fracture system did exist (8), the volume of tagged water produced did not materially change the water-injection calculations used in the prediction.

When the first tests were performed in 1963, water injection into the pattern had been underway for only a few months. At this time, a high differential pressure between injection and producing wells undoubtedly existed. The short time required to produce the injected dye in 1963 could not be duplicated in the January 1965 tests. Instead, considerably smaller amounts of tracer were produced over longer periods of time.

At the time the second series of tests was made, the waterflood had been in operation for more than 2 years. During that time, the high differential pressure which initially existed in the reservoir was no longer present, and this condition would have permitted the fractures to partially close.

During a third series of tracer tests conducted in August 1965 at still higher injection pressures, dye was produced in a short period of time which indicated greater fracture opening. The extent and fluid intake of the fractures in the pilot waterflood area is therefore a function of the existing differential pressure in the reservoir.

Another interesting effect of the fracture system is the preferential flow path of the injected water. All the successful tracer tests indicate that this flow is along a line north 76° to 79° east with reservoir flow occurring primarily from west to east.

In preparing a study of this nature, the various parameters inherent to the method are very difficult to establish. When viewing the predicted results for the pilot waterflood, it is quite evident that the originally assumed initial gas saturation of 20 percent was in error; whereas, a saturation of 13 percent may be more realistic.

The favorable field response of the pilot waterflood has prompted the operator to expand his present project. The addition of 180 acres southwest of the current pilot waterflood was initiated in January 1966, and will add approximately 10 normal five-spots to the existing waterflood pattern. Orientation of the fracture system will also be attempted in order to establish communication between injection wells and thus create a linear flow system. The knowledge gained in fracture extent and orientation from the current waterflood will, if successful, lead to a more efficient waterflood pattern in the Kane oilfield.

CONCLUSIONS

The assumed gas saturation of 20 percent used in the original prediction was incorrect. The maximum oil recovery predicted at the time the assumption was made is considerably less than the actual field performance. Furthermore, the field performance indicates that an initial gas saturation of 13 percent existed in the reservoir. When this gas saturation is used, predicted results for ultimate recovery agree with calculated values derived by decline-curve analysis. Based upon the latter calculations, the pilot waterflood in the Kane sand should ultimately produce 50,000 to 55,000 barrels of oil, or 129 to 142 barrels per acre-foot.

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APPENDIX. - PRODUCTION DATA AND CORE ANALYSES

TABLE A-1. - Production and injection data, Kane sand pilot waterflood, Kane oilfield, Land Warrant 3777, Highland Township, Elk County, Pa.

Month	Production							Injection	
	Oil			Water		Oil and water	Water-	Monthly barrel	Cumulative, barrel
	Monthly, barrel	Daily, barrel per day	Cumulative, barrel	Daily, barrel per day	Cumulative, barrel	Cumulative, barrel	oil ratio		
1962									
December	-	-	-	-	-	-	-	5,424	5,424
1963									
January	-	-	-	-	-	-	-	4,864	10,288
February	-	-	-	-	-	-	-	18,560	28,848
March	-	-	-	-	-	-	-	19,934	48,782
April	239	21.1	239	-	-	239	0.0	19,630	68,412
May	471	15.2	710	1.2	37	747	.1	22,126	90,738
June	531	17.7	1,241	43.1	1,330	2,571	2.4	22,190	112,928
July	583	18.8	1,824	61.1	3,223	5,047	3.3	22,705	135,633
August	862	27.8	2,686	72.7	5,478	8,164	2.6	20,107	155,740
September	963	32.1	3,649	67.8	7,512	11,161	2.1	18,296	174,036
October	1,066	34.4	4,715	68.0	9,621	14,336	2.0	17,460	191,496
November	1,104	36.8	5,819	68.8	11,682	17,501	1.9	16,090	207,586
December	1,271	41.0	7,090	65.4	13,710	20,800	1.6	15,693	223,279
1964									
January	1,243	40.1	8,333	67.1	15,790	24,123	1.7	15,590	238,869
February	1,262	43.5	9,595	74.7	17,957	27,552	1.7	13,847	252,716
March	1,395	45.0	10,990	81.4	20,479	31,469	1.8	14,791	267,507
April	1,362	45.4	12,352	86.2	23,063	35,415	1.9	13,591	281,098
May	1,283	41.4	13,635	73.5	25,986	39,621	2.3	14,626	295,724
June	1,161	38.7	14,796	116.5	29,463	44,259	3.0	14,370	310,094
July	1,206	38.9	16,002	123.9	33,304	49,306	3.2	15,061	325,155
August	1,048	33.8	17,050	122.4	37,098	54,148	3.6	15,120	340,275
September	943	31.4	17,993	138.4	41,250	59,243	4.4	15,210	355,485
October	967	31.2	18,960	136.7	45,492	64,452	4.4	14,594	370,079
November	900	30.0	19,860	134.0	49,512	69,372	4.5	13,779	383,858
December	886	28.6	20,746	133.2	53,641	74,387	4.7	14,159	398,017
1965									
January	911	29.4	21,657	137.8	57,912	79,569	4.7	14,659	412,676
February	739	26.4	22,396	133.1	61,639	84,035	5.0	12,142	424,818
March	827	26.7	23,223	130.0	65,665	88,888	4.9	13,397	438,215
April	789	26.3	24,012	133.1	69,657	93,669	5.1	12,617	450,832
May	798	25.8	24,810	136.6	73,892	98,702	5.3	12,210	463,042
June	797	26.6	25,607	138.4	78,046	103,653	5.2	11,689	474,731
July	779	25.0	26,386	138.3	82,333	108,719	5.5	11,147	485,878
August	789	25.5	27,175	149.6	86,971	114,146	5.9	11,839	497,717
September	713	23.8	27,888	144.1	91,295	119,183	6.1	11,342	509,059
October	700	22.6	28,588	145.6	95,662	124,250	6.4	11,300	520,359
November	663	22.1	29,251	141.8	100,058	129,309	6.4	11,743	532,102
December	631	20.4	29,882	142.3	104,470	134,352	7.0	11,740	543,842
1966									
January	540	17.3	30,422	133.5	108,609	139,031	7.7	11,626	555,468

TABLE A-2. - Core analysis based on lithologic description, Kane sand, well E-3, Kane oilfield, Land Warrant 3777, Highland Township, Elk County, Pa.

Sample	Permeability, md	Porosity, percent pore volume	Saturation percent pore volume		Oil content, barrel per acre-foot	Salt content, mg NaCl per gram core
			Oil	Water		
Lithologic section 1 - 4.9 feet of sandstone ¹						
1.....	8.6	13.4	24.0	1.0	250	-
2.....	4.7	12.5	23.2	7.3	226	1.17
3.....	3.4	12.9	18.7	11.3	188	1.13
4.....	4.5	12.8	29.8	5.9	297	-
5.....	7.4	13.4	45.0	1.1	470	-
6.....	6.1	12.6	32.4	4.2	319	-
7.....	16.4	15.0	24.2	4.1	283	1.00
8.....	10.3	14.4	21.5	4.2	242	-
9.....	6.9	13.1	25.5	6.6	261	.97
Average....	7.6	13.3	27.1	5.1	282	1.07
Lithologic section 2 - 8.5 feet of sandstone ²						
10.....	0.4	8.8	25.9	25.2	179	-
11.....	.2	7.5	29.8	8.0	175	-
12.....	<.1	3.4	68.3	7.5	182	-
13.....	.3	5.7	30.5	32.0	137	-
14.....	<.1	1.7	-	-	-	-
15.....	<.1	3.4	-	-	-	-
16.....	1.2	9.6	24.7	13.5	184	.90
17.....	<.1	2.9	-	-	-	-
18.....	<.1	4.6	-	-	-	1.13
19.....	.4	6.1	31.1	41.9	149	-
20.....	.2	5.3	37.1	48.4	154	-
21.....	2.5	11.8	18.7	17.5	173	-
22.....	.5	6.9	15.5	47.8	84	-
23.....	1.0	6.8	29.7	33.8	158	-
24.....	.3	6.6	46.1	18.5	239	-
25.....	1.0	3.6	-	-	-	-
26.....	<.1	2.9	-	-	-	-
27.....	<.1	2.5	-	-	-	-
< Less than						
Average....	.5	5.6	32.5	26.7	165	1.02
Lithologic section 3 - 2.3 feet of sandstone ³						
28.....	0.1	1.8	-	-	-	1.57
29.....	<.1	2.8	-	-	-	-
30.....	1.3	9.9	33.4	2.5	258	-
31.....	<.1	3.2	-	-	-	-
32.....	<.1	2.4	-	-	-	1.63
< Less than						
Average....	.3	4.0	33.4	2.5	258	1.60

See footnotes at end of table.

TABLE A-2. - Core analysis based on lithologic description, Kane sand, well E-3, Kane oilfield, Land Warrant 3777, Highland Township, Elk County, Pa.--Continued

Sample	Permeability, md	Porosity, percent pore volume	Saturation percent pore volume		Oil content, barrel per acre-foot	Salt content, mg NaCl per gram core	
			Oil	Water			
Lithologic section 4 - 1.1 feet of sandstone ⁴							
33.....	<0.1	1.0	-	-	-	1.47	
34.....	<.1	.9	-	-	-	-	
35.....	<.1	1.2	-	-	-	-	
< Less than Average....	<.1	1.0	-	-	-	1.47	
Lithologic section 5 - 3.6 feet of sandstone ⁵							
36.....	0.1	2.7	-	-	-	1.27	
37.....	.1	.5	-	-	-	-	
38.....	.8	.9	-	-	-	1.77	
39.....	.4	3.8	-	-	-	-	
< Less than Average....	.4	2.0	-	-	-	1.52	
Lithologic section 6 - 3.3 feet of sandstone ⁶							
40.....	<0.1	1.0	-	-	-	-	
41.....	<.1	3.0	-	-	-	1.33	
42.....	<.1	2.3	-	-	-	2.43	
43.....	.3	.9	-	-	-	-	
< Less than Average	.1	1.8	-	-	-	1.88	
Average Results							
Lithologic section	Core recovered, feet	Permeability, md	Porosity, percent pore volume	Saturation percent, pore volume		Oil content, bbl per acre-foot	Salt content, mg NaCl gram per core
				Oil	Water		
1.....	4.9	7.6	13.3	27.1	5.1	282	1.07
2.....	8.5	.5	5.6	32.5	26.7	165	1.02
3.....	2.3	.3	4.0	33.4	2.5	258	1.60
4.....	1.1	<.1	1.0	-	-	-	1.47
5.....	3.6	.4	2.0	-	-	-	1.52
6.....	3.3	.1	1.8	-	-	-	1.88

¹Medium brownish gray, mostly very fine-grained, highly angular, tightly cemented, very slightly calcareous; oil stain.

²Medium light to medium gray, very fine- to fine-grained, highly angular, slightly calcareous, tightly cemented, slightly micaceous, argillaceous; some shale partings.

³Medium brownish gray, very fine- to fine-grained, highly angular, tightly cemented, moderately to highly calcareous, micaceous, fossiliferous, argillaceous; some shale partings.

⁴Light gray, quartzitic, streaks of argillaceous and micaceous material, highly calcareous; fossiliferous.

⁵Medium gray, slightly calcareous, argillaceous; fossiliferous.

⁶Medium gray, silty; slightly micaceous.

TABLE A-3. - Core-analysis results, Kane sand, well E-1, Kane oilfield,
Land Warrant 3777, Highland Township, Elk County, Pa.

Sample	Depth, feet	Sand thickness, total feet	Horizontal air permea- bility, md	Porosity, percent	Saturation, percent pore volume		
					Oil	Water	Gas
1	2,314.4	0.3	0.2	-	-	-	-
2	2,315.0	.4	.1	4.2	45.8	26.5	27.7
3	2,315.5	.2	1.0	-	-	-	-
4	2,316.0	.4	1.5	8.6	36.6	17.4	46.0
5	2,316.4	.4	.1	-	-	-	-
6	2,317.3	.5	3.4	11.9	27.8	25.9	46.3
7	2,317.8	.5	.9	-	-	-	-
8	2,319.2	.2	1.5	-	-	-	-
9	2,319.6	.2	.1	-	-	-	-
10	2,320.2	.4	.2	11.3	32.2	25.7	42.1
11	2,320.6	.3	.1	-	-	-	-
12	¹ 2,323.7	.4	1.4	7.4	41.1	19.4	39.5
13	2,324.3	.2	1.6	-	-	-	-
14	2,325.0	.2	.1	-	-	-	-
15	2,325.9	.5	3.8	9.7	37.6	26.5	35.9
16	2,326.4	.5	8.5	-	-	-	-
17	2,326.9	.5	9.6	13.4	35.8	50.3	13.9
18	2,328.0	.5	6.5	13.7	30.5	38.5	31.0
19	2,328.5	.2	6.5	-	-	-	-
20	2,329.3	.3	.8	-	-	-	-
21	2,330.5	.5	4.6	11.2	33.2	24.8	42.0
22	2,331.3	.4	1.2	10.2	29.8	21.5	48.7
23	2,331.8	.2	.2	-	-	-	-
24	2,332.4	.4	9.4	10.9	29.1	31.3	39.6
25	2,333.5	.3	2.5	-	-	-	-
26	2,334.3	.6	2.5	10.4	26.8	20.6	52.6
27	2,337.2	.5	.6	6.1	26.2	21.4	52.4
28	2,339.1	.2	.3	7.4	28.9	22.9	48.2
29	2,339.5	.2	1.1	-	-	-	-
30	2,339.9	.2	1.4	10.2	23.9	10.1	66.0
31	2,341.3	.2	1.0	9.5	19.0	18.3	62.7
32	2,341.9	.4	4.6	10.6	30.8	24.2	44.8
33	2,343.0	.4	6.2	10.8	24.1	31.9	44.0
34	2,349.0	.6	3.1	10.8	23.2	57.1	19.7
34	2,349.6	.5	5.2	-	-	-	-
36	2,350.2	.5	.4	10.0	26.4	58.0	15.6
Average	-	-	2.6	9.9	30.4	28.6	51.0

¹2.2 feet of core unrecovered.

Exhibit 4
to

Supplemental Declaration of Douglas E. Kuntz



United
States
Department
of
Agriculture

Forest
Service

July 2009



Allegheny National Forest

Draft Supplemental Environmental Impact Statement

**To Accompany the
2007 Land and Resource Management Plan and
Final Environmental Impact Statement**

For Information Contact:

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http://www.fs.fed.us/r9/forests/allegheny/projects/supp_eis/index.php

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For areas outside of the 13 percent watershed, increased runoff volumes, flood peaks, and runoff are likely due to less effective S&Gs. Smaller stream and wetland buffers will allow runoff easier access to water bodies, as will less effective control of runoff from roads. The absence of buffers for springs, seeps, and wetlands less than 1 acre that are not shown on USGS quad maps would increase runoff and decrease storage in these areas. Higher likelihoods of compaction, puddling, and rutting would promote higher volumes and rates of runoff. Less effective reclamation S&Gs will extend the length of time soil is exposed to runoff. This would be most evident in the 135,344 acres of CWF and WWF watersheds because successful revegetation would not be required within 60 days of the next growing season.

Groundwater

Alternative 1—This alternative would likely have impacts on shallow groundwater, both in terms of quality and quantity. The changes in surface water quality would be reflected in groundwater quality due to the interaction of these waters, particularly at low flow levels. While sediment and temperature would not likely be of concern, any chemicals in surface water could easily enter groundwater and reduce the quality of those waters. Groundwater quantity could decrease as surface waters that would otherwise infiltrate the soil would instead runoff to downstream locations.

Alternatives 2 and 3—These alternatives will have essentially the same affect on groundwater in terms of quality and quantity. S&Gs would provide protection from contamination and preserve water quality, particularly during periods of low flow. Similarly, measures that prevent or slow surface runoff will allow water to infiltrate the soil surface and percolate to shallow groundwater, increasing subsurface supplies for future use.

Alternative 4— This alternative will likely result in affects to both groundwater quality and quantity. Decreased buffers and allowance of equipment in more stream corridors would increase the likelihood of contamination of surface waters and groundwater, particularly from oil, grease and other chemicals used in pvt OGD. The absence of buffers for springs, seeps, and wetlands less than 1 acre that are not shown on USGS quads would increase potential effects to ground water. Higher rates of surface runoff due to less stringent S&Gs would promote movement of waters downstream rather than on-site infiltration and movement to shallow groundwater supplies.

Cumulative Effects

The cumulative effects section for water resources on the ANF is described in the FEIS (USDA-FS 2007a p.3-48 through 3-51) and is incorporated by reference. The cumulative effects analysis area for watersheds and riparian resources is the 15 watersheds within the proclamation boundary. These watersheds encompass 1,400,350 acres, but only 740,600 acres will be analyzed. Water quality is believed to be comparable inside and outside the proclamation boundary because the four-county area has similar forest cover and pvt OGD development rates are assumed to be the same as within the proclamation boundary. The time frame analyzed is from 1986 to 2020.

Pvt OGD has the potential to have impacts to water resources from past, present, and predicted future development. Increased runoff occurs from compacted soils and could cause changes to streamflow volumes and timing of flows. Some level of sediment from roads would reach streams and wetlands impacting the physical characteristics of water resources to some degree. Where BMPs are applied properly, these effects should be short term until sites are stabilized and fully revegetated. Active maintenance of site development will be required to prevent long-term effects to water resources.

The analysis below highlights projected pvt OGD within the proclamation boundary. To analyze cumulative effects for development levels, the following assumptions were made: 1) housing and commercial development levels are static or only slightly increasing and will not be considered, 2) rates of pvt OGD on NFS lands are equal to development on private and other public lands, 3) stone pits will

have a minor effect on water resources and will not be considered because they are located in areas away from streams and riparian areas, and 4) motorized trails are only predicted on FS lands.

From 1986 to 2005, there were 180 miles of new road or existing corridor added to the ANF transportation system and 1,123 miles of pvt OGD roads constructed on the ANF, and 528 miles of pvt OGD roads constructed on private land within the proclamation boundary (FEIS Table 3-17, p. 3-74; SEIS Appendix C, Table C-3). By 2020, an additional 85 miles of potential new NFS roads will be constructed, 1,920 miles of potential new pvt OGD roads on NFS lands, and 859 miles of potential new pvt OGD roads on private lands will be constructed (FEIS Table 3-17, p. 3-74; SEIS Appendix C Table C-4 and C-6). There will be a difference in water and riparian resource effects between alternatives due to the variation in S&Gs as described in the effects discussion. All alternatives will combine with pvt OGD and double the magnitude of development over levels that occurred between 1986 to 2005. Where these roads are hydrologically connected to streams in these watersheds and mitigations are insufficient or not maintained, increased runoff and erosion could lead to channel scour, excessive sedimentation, and deposition.

Along with pvt OGD roads, there will be sedimentation and increased runoff to streams and riparian areas from well pads where they are in close proximity to these areas. From 1986 to 2005, it is estimated that 4,493 well pads were constructed on the ANF and 2,087 well pads on private land (SEIS Appendix Table C-2). There is a potential for 7,680 pvt OGD well pads on the ANF and 3,520 well pads on private lands to be added in the next 15 years (2005 to 2020) within the proclamation boundary (see Appendix C, Table C-6). Although spills are rare within the proclamation boundary, with increases in OGD there is higher potential for spills to reach stream channels and wetlands. The quantity of the spill that reached stream and wetland systems would determine the extent of damage to water resources and the length of time for recovery, but this cannot be predicted in this analysis (Appendix C).

Pvt OGD will result in effects to water quality with additional road and well pad construction. Pennsylvania Best Management Practices (BMPs) set guidelines for road and well pad construction for pvt OGD to control erosion and sedimentation (PA DEP 2001). Oil and gas operators are required to develop and implement erosion and sedimentation plans for their developments, which are approved by the PADEP. These plans outline the BMPs used to minimize erosion and prevent sedimentation of streams and wetlands. Providing buffers from streams and wetlands and controlling erosion and sedimentation from roads, particularly at stream crossings, would help protect water resources. BMPs protect channel condition and water quality if installed correctly and maintained.

Marcellus Shale Development

All applicable S&Gs will be employed in the development of the Marcellus shale. Although the intensity, duration and scale of development is greater, the S&Gs, Pennsylvania BMPs and stormwater controls would be applied at the appropriate levels to control effects from sedimentation and runoff. Higher standards of road building would be utilized to handle the high traffic levels. PADEP would regulate water withdrawal and water discharge in the Allegheny River basin. The Commonwealth's anti-degradation policy requires that at a minimum, existing water uses and level of water quality necessary to protect the existing uses shall be maintained and protected.

Differences between alternatives would be similar to effects for shallow well drilling. There are additional S&Gs in Alternatives 3 and 4 that specifically address deep well development. Additional site specific analysis will be needed to determine the full extent of measures needed to mitigate or minimize effects associated with this activity.

Exhibit 5
to

Supplemental Declaration of Douglas E. Kuntz



Pennsylvania Independent Oil and Gas Association
115 VIP Drive, Suite 210
Wexford, PA 15090-7906

Allegheny National Forest
Ms. Leanne M. Marten, Forest Supervisor
4 Farm Colony Drive
Warren, PA 16365

September 14, 2010

Re: Private Oil and Gas Development

Dear Ms. Marten,

The purpose of this letter is three-fold. First, it is to advise you of the Association's concern with what appears to be harassment of one of its members by Forest Service officers. Second, it is to invite you, again, to meet with our Association to facilitate satisfying "due regard" requirements concerning private oil and gas development in the Allegheny National Forest ("ANF"). Third, it is to express our disappointment with the efforts you are making in reviewing well development notifications.

With respect to the first issue, it has come to our attention that Duhring Resources, an Association member, is being singled out for discriminatory and unfair treatment. A copy of a letter that Mr. Stewart found necessary to send to Mr. Scardina (dated August 30, 2010) is attached for ease of reference. The conduct of your agency outlined by Mr. Stewart is unlawful and appears to be retaliatory in nature. As such, the Association requests that you agency cease and desist such conduct.

Second, as you are aware, the Association has sought to engage in a cooperative and constructive dialogue with you regarding the conduct of drilling and exploration operations on our members' privately owned mineral estates. Your letter of April 13, 2010 (also enclosed) identified the three previous occasions wherein I invited you to engage in collaborative discussions. Unfortunately, your April 13 letter suggests that site-specific and one-on-one communication and negotiation with PIOGA members are all that are necessary to comply with the preliminary injunction order issued by Judge McLaughlin last December ("Preliminary Injunction") and, presumably, all that are required of you with respect to your dealings with PIOGA and its members. However, PIOGA believes your agency is required to review oil and gas development plans in a professional and businesslike manner, and refrain from engaging in harassment and discriminatory treatment in business dealings with private oil and gas developers within the ANF. Accordingly, PIOGA renews its request for cooperative meetings and refers you to our previous correspondence regarding the proposed discussion topics.

Third, I would also like to note the Association's dissatisfaction with your agency's dilatory review of our members' oil and gas development notifications, and request that you immediately devote additional time and resources to expediting such review to conform with Pennsylvania law, the 1980 *Minard Run* decision, and the Preliminary Injunction. As of July 15, 2010, not a single development notification received by your agency since the date of the Preliminary Injunction has been completed within the 60-day target date. To the

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Telephone (724) 933-7306 Fax (724) 933-7310

contrary, reviews of new notifications by your agency since the Preliminary Injunction have taken an average of 125 days. Moreover, of all the active private oil and gas development notifications provided to your agency since November 1, 2007 and not "grandfathered" by the enjoined settlement agreement, only 28 cases (387 wells) out of a total of 73 cases (1,101 wells) have been processed. For your benefit, I have attached a detailed processing summary. Finally, it is important to note that PIOGA member Pennsylvania General Energy Company L.L.C. (PGE) has not received responses to the last three FOIA requests that PGE submitted to the ANF regarding overall case processing. Those requests are dated July 30, August 15, and August 31, 2010. As a result, the most current processing information available to PIOGA dates from your enclosed FOIA response of August 6, 2010.

Please respond and let me know: a) whether the Forest Service intends to continue to refuse to meet with PIOGA for "programmatic" discussions to identify cooperative measures that can be implemented; and b) what steps the Forest Service is taking to meet the 60-day target date of Pennsylvania common law, the *Minard Run* decision, and the Preliminary Injunction. Thank you.

Sincerely,



Craig L. Mayer
Chairman, Allegheny National Forest Committee, PIOGA
c/o 120 Market Street
Warren, PA, 16365

Copy To: Regional Forester, Region 9 - with enclosures
Chief, U.S. Forest Service - with enclosures

Enclosures

New cases (Post-Injunction): The 32 private oil and gas development ("OGD") Notification submissions ("well packages") received by the Forest Service between December 15, 2009 and July 15 2010 included a total of 32 well packages encompassing 481 wells. Of these 32 well packages, the Forest Service has issued so-called Notice to Proceed letters ("NTPs") for only nine well packages encompassing a total of 104 wells. Therefore, as of July 15 2010, there were 23 well packages encompassing 377 of these wells remaining to be processed. Of the nine well packages that were reportedly processed, none were completed within 60 days of receipt by the Forest Service, even though only two well packages exceeded nine wells. The average time for processing a well package (dividing the total number of days elapsed for a well package to be reviewed from receipt to completion of review by the total number of well packages) has been 125 days, or twice the "target" timeframe noted by the Court in the Preliminary Injunction order. In addition, the FOIA responses are factually incorrect in that nine (not eight) new well packages have been processed. More specifically, well package numbers M202 and M206 were submitted as separate well packages on different dates in December 2009, and comprise two (not one) well packages as incorrectly reported (specifically M-206) in the Forest Service's January 6, 2010 status report.

Old cases (TEIS): The OGD Notifications received by the Forest Service between November 1, 2007 and June 2, 2009 that were consigned to the TEIS program and related drilling moratorium involve 40 well packages encompassing 620 wells. Processing delays for these 40 well packages now range from a minimum of 12 months to well over two years. The Forest Service's August 6, 2010 status report stated that the Forest Service issued 19 NTPs encompassing 283 of these wells. Therefore, 22 well packages encompassing 337 of these wells remain to be processed. None of the 19 NTPs that were issued were processed within 60 days of well package receipt by the Forest Service, and only three were processed within 60 days of the Preliminary Injunction order.

Please note that the TEIS summary in the Forest Service's January 6, 2010 status report incorrectly stated that PGE has one 82-well package in the TEIS large package program. However, PGE submitted nine small well packages, not one large well package. These PGE well package submissions were admitted as Exhibits S-2 thru S-10 in the August 2009 District Court evidentiary hearing. Accordingly, the January 6, 2010 status report indicating receipt by the Forest Service of 32 large and small TEIS packages is incorrect. The Forest Service received at least 40 well packages as correctly reflected in the periodic FOIA reports, which accurately account for the PGE well packages. Also, please note that the 620-well figure (see above) comes from the Forest Service's January 6, 2010 status report, which is the total reported for active large and small well package submissions. In that report, an additional 1,619 wells that were consigned to the TEIS program were also identified but classified as "on-hold." For the purpose of this summary, they are therefore considered as "on-hold" and are not being treated as being processed at this time.

Old cases (Those Grandfathered in 2009 and those reviewed between July 1, 2008 and December 31, 2008): These OGD Notifications consist of 54 well packages encompassing 584 wells that were delayed by the 100-day pre-Settlement Agreement moratorium effected on January 1, 2009 but "grandfathered" by the Settlement Agreement, as well as approximately 189 wells (unknown number of corresponding well packages) that were processed between July 1, 2008 and Dec 31, 2008. There were therefore a total of 773 wells in this category. Note: Pursuant to sworn court testimony by the Forest Supervisor, the Forest Service was slated to approve 773 wells for FY 2009 (July '08 to July '09), which included the 584 grandfathered wells. Accordingly, with the subtraction of the grandfathered wells the Forest Service approved approximately 189 wells between July 1, 2008 and Dec 31, 2008.

As of July 15, 2010, the Forest Service reported processing well packages for 374 wells between January 1, 2009 and December 31, 2009. All of these wells would have been "grandfathered" wells. Accordingly, between July 30, 2009 and December 31, 2009, the Forest Service completed processing well packages for 255 "grandfathered" wells. Since January 1, 2010, the Forest Service has reported processing seven well packages encompassing 82 wells that were not part of either the TEIS program or new submissions since

Case 1:09-cv-00125-SJM Document 89-2 Filed 11/02/11 Page 83 of 123
December 15, 2009. Accordingly, unless these well packages are part of the "on-hold" IEIS program cases, these 82 wells in these well packages derive from "grandfathered" well packages. As such, it appears that approximately 456 of the original 584 "grandfathered" wells have now been processed.

Summary of wells processed (NTPs issued) during timeframes since July 1, 2008.

July 1, 2008 to December 31, 2008 – 189 wells (pre-Settlement Agreement and moratorium)

January 1, 2009 to April 10, 2009 – 0 wells (drilling moratorium)

April 10, 2009 to Dec 31, 2009 – 374 wells ("grandfathered" wells only)

January 1, 2010 to July 15, 2010 – 469 wells (new – 104; IEIS – 283; and "grandfathered" – 80 or 82)

DUHRING RESOURCE COMPANY

203 Center Street
P.O. Box 726
Sheffield, PA 16347

Phone (814) 968-3337

Fax (814) 968-3330

August 30, 2010

SENT BY EMAIL & FIRST CLASS MAIL

Mr. Anthony Scardina
Allegheny National Forest
Bradford Ranger District
29 Forest Service Drive
Bradford, PA 16701

RE: Response to your email of August 18, 2010

Dear Mr. Scardina,

I received your email of August 18, 2010. I cannot help but conclude your primary purpose is to harass our company. Contrary to the belief asserted in your email, Duhring has not applied stone to the road surface and there is no reason for the Forest Service to bill Duhring.

Over the past three years there has been such an uninterrupted litany of similar Forest Service "errors" that it cannot be mere coincidence. You will recall that in February 2008 you used your police force to evict Duhring from its property because you asserted Duhring failed to pay the proper road permit fee. I remind you that Duhring had previously contested your calculations (I attach a copy of my letter of January 30, 2008). In order for Duhring to regain access to its property you required Duhring to pay over \$14,000. You have since acknowledged that your calculations were incorrect. But, the Forest Service still has not repaid the more than \$6,000 owed because of your February 2008 miscalculation.

More incredible is your miscalculation of every subsequent road fee during the past 2 ½ years. I always complain, and you always correct, but the number of those subsequent miscalculations suggests something other than mere ineptitude. The subsequent miscalculations result in another \$13,000 being owed to Duhring and your progress on that repayment is exceedingly slow. You have never discussed paying interest but your actions have wrongfully tied up large sums belonging to Duhring.

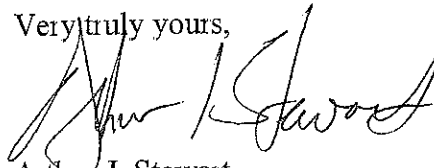
After receiving your August 18, 2010 email I examined the road you allege was surfaced. While there I encountered three Forest Service employees inspecting the road in question. Not only were they unable to point out any stone applied to the road surface, they acknowledged they were present to inspect how Duhring's new roads held up after the

recent rain. The employees were Paul Weiss, Steve Dowlan, and James Seyler, three of your most senior subordinates. It is obviously costly to have three such senior employees inspecting Duhring's facilities. Given how far behind those three gentlemen are in processing oil and gas projects, and given their seniority, I believe their presence is more evidence that your purpose is to harass. Surely that labor expenditure was not a routine inspection. (As to how far behind those three gentlemen are, I direct your attention to the missed time frames you and Ms. Marten assured us could be met this spring. At the moment Duhring is waiting for your timber price and road documentation on cases B-55 and 57.)

For being such senior employees the three men were also unable to answer when the stacked timber would be sold by the Forest Service. That timber has now been cut for so long that it has lost value. This is ironic given that you delayed Duhring's project for 19 months while we disagreed over \$9,000 in timber value. You cared about that \$9,000 while it delayed Duhring but now that the timber has been stacked on the ground for six months your alleged concern about taxpayer dollars has vanished.

When all of this (and more) comes into focus it is a picture of harassment and government waste. I am sending a copy of this letter to the Regional Forester to ask for his intercession. I seek both a cessation of this targeting behavior as well as a prompt reconciliation of the improperly calculated road fees. I am bypassing Supervisor Marten because I made similar requests, to her, with no relief.

Very truly yours,

A handwritten signature in black ink, appearing to read "Arthur J. Stewart". The signature is fluid and cursive, with the first name "Arthur" being more prominent than the last name "Stewart".

Arthur J. Stewart
Vice President

Cc Kent Connaughton Regional Forester
Congressman Glenn Thompson
Craig Mayer, Esq., Chairman PLOGA ANF Committee Chairman
Attorney General Tom Corbett

DUHRING RESOURCE COMPANY

203 Center Street
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Phone (814) 968-3337

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January 30, 2008

SENT BY FAX & MAIL

Mr. Anthony Scardina
Allegheny National Forest
Bradford Ranger District
29 Forest Service Drive
Bradford, PA 16701

RE: Road Use Permit -- Forest Roads 148, 162, 163, and 103

Dear Mr. Scardina:

I write in response to your letter of January 17, 2008. Your letter contains a history of events. I find some inaccuracies in that history; however, I do not think that history has any bearing on the work that remains to be done.

The road use fee that your office has calculated is still not correct. The problems we must work through are as follows:

1. Crushed Aggregate Rate. Your calculation of fees applies the crushed aggregate rate for all of F.R. 148. Only a portion of F.R. 148 has a crushed aggregate surface. The balance is pit run. A proper application of your formula would be a blend of the crushed aggregate and pit run rates prorated to the percentage of roads surfaced with each.

2. Oil Haul Charge. Your calculations for new oil/gas well development (entitled "EQ Haul" on your share calculation) include charges for oil production from the wells for the first year. In Duhring's situation, there are two problems with your assumption. First, the oil storage tanks for the new wells are located in immediate proximity to State Route 948; the oil trucks will not be using the Forest Routes you have assumed. Specifically, the Lot 7 tank battery is located adjacent to Well 172. Oil trucks servicing this tank battery will not use any of F.R. 103, 163, or 162. They will not use any of the two-plus miles of F.R. 148 except for any portion of F.R. 148, not a part of the PennDOT right-of-way, adjacent to Well 172. I have not performed the measurements, but that might involve 50 feet or less of F.R. 148. Similarly, oil from the Lot 8 and Lot 9

projects will be collected in the tank battery adjacent to Well F-6. That tank battery will not require the utilization of any of F.R. 103, 162, or 163. It will require the use of approximately one-third mile of F.R. 148. Second, Duhring will not be able to produce oil (and gas) from these new wells for a significant portion of 2008. Duhring's inability is directly caused by the Forest Service's delays. I have complained about those delays in other formats and will not repeat those complaints here. However, the reality is that Duhring will not be hauling oil for an entire year and that a prorata adjustment in your assumptions must be made. The length of that delay remains, in part, in your control inasmuch as the Lot 8 project (and the associated pipelines to serve the Lot 9 project) remain delayed by the problem caused by your timber purchase price. I would suppose that if the Forest Service insists that we pay one year ahead on the oil haul calculation, the proper calculation will have to wait until the Forest Service decides how and when to resolve the timber problem.

3. Erroneous Category I Assumptions There are several assumptions under Category I of your cost guide which do not fit Duhring's actual field operations. Permit me to summarize those as follows:

a. The vac truck will not be operating on the Forest roads as assumed. For the Lot 7 project, the vac truck utilized roads constructed by Duhring rather than adjacent F.R. 103. For the wells on Lot 9, the vac truck will obtain its water from our pond near West Fork Run which will involve a trip of a little less than one-half mile on pit run surfaces. For the Lot 8 project, the vac truck will be able to access Rock Run from oil and gas roadways constructed by Duhring.

b. For the Lot 7 project, the assumption of two frac trucks is accurate. However, Duhring is purchasing its own hydro-fracturing equipment which will be mounted on a single truck which it intends to utilize on the Lot 8 and Lot 9 projects. Thus, for the Lot 8 and 9 wells, a single frac truck should be contemplated.

c. For the purchase of rods, tubing, casing and drive pipe, Duhring spots the materials at the job site. Sufficient casing for three or more wells can be delivered via one truckload. Similarly, sufficient tubing and rods for three or more wells are delivered via one truckload. Jacks are delivered at approximately six per truckload and similarly spotted.

4. Erroneous Category II Assumptions The incorrect facts concerning the Category II assumptions are as follows:

a. Duhring's drilling contractor (Hornburg Drilling) does not utilize a dog house of the type contemplated. Instead, Hornburg utilizes a small trailer weighing approximately 5,000 pounds.

b. During the hydro-fracturing operation, only two water tanks (rather than the three assumed tanks) are utilized.

5. Stone Haul on F.R. 148 for Lot 7. The number of well pads for this component should be reduced from 15 to 13. Duhring's excavation contractor sometimes finds stone at the location of a well site or roadway which stone can be used for surfacing material. Usually, this stone is not of sufficient quantity to be concerned about in the calculations. However, at Wells 7-12 and 7-11 on Lot 7, significant quantities of stone were found. That stone was used to surface both locations and the roadway serving all of location 7-11 and extending partially to 7-10. Accordingly, the stone haul from the pit adjacent to F R. 162 was not necessary for those two well sites.

I am sorry that our field operations are different than the facts you have assumed, as that makes it complicated for both of us. However, I trust that now you can appreciate the reason for my inquiries of December 28, 2007.

Before your tenure on the ANF, it had been the practice of Forest Service employees to complete the Road Use Permit Applications after meeting with Duhring to learn about particular facts in the field. Over the years I have had such meetings with Jeff Stevenson and Lauren Miles, for example. Jeff and I have done this, in the past, for these same roads, and I would be happy to meet with Jeff, Sheldon, or your other designee to work through these complicated calculations.

However, the one calculation we will not be able to resolve is the rate for oil haul inasmuch as it depends upon the outcome of the timber delay noted above. Perhaps an alternative course of action would be to calculate the fees apart from the oil haul, holding the oil haul component until some later date. I am open to alternative suggestions.

Very truly yours,

Arthur J. Stewart

AJS/ame



United States
Department of
Agriculture

Forest
Service

Allegheny National Forest
Supervisor's Office

4 Farm Colony Drive
Warren, PA 16365
(814) 723-5150
FAX (814) 726-1465

File Code: 2820-2

Date: April 13, 2010

Craig L. Mayer, Esq.
Allegheny National Forest Committee
Pennsylvania Independent Oil and Gas Association
120 Market St.
Warren, PA 16365

Dear Mr. Mayer:

I have reviewed your March 16, 2010, letter submitted on behalf of the Pennsylvania Oil and Gas Association (POGAM), and your April 8, 2010, letter submitted on behalf of the Pennsylvania Independent Oil & Gas Association (PIOGA). In both letters, you renewed your January 28, 2010, request for a meeting to discuss various broad issues regarding processing applications for development of reserved and outstanding minerals on the Forest.

The issues you wish to discuss are still pending in federal district court. I must, therefore, decline to meet with the PIOGA committee (formerly the POGAM committee) as it would be inappropriate for me to discuss these litigation issues at this time. I encourage you to contact our legal counsel if you wish to discuss matters pending in litigation.

Even though I am unable to meet with the committee at this time, we have and will continue to meet and work cooperatively with individual PIOGA members to discuss and negotiate specific issues concerning their applications. This one-on-one communication and negotiation complies with the Judge's December 2009 *Minard Run* order and addresses specific issues in the context of site-specific resource conditions (including road use during spring break-up). I want to emphasize that we will continue to be available to discuss PIOGA members' concerns with specific applications and encourage them to please contact us with any concerns they may have.

Your letter expressed familiar contentions concerning timber disposal in conjunction with oil and gas development. I have personally discussed and/or corresponded on this issue with POGAM (now PIOGA) and the agency's response to your concerns is a matter of record. Briefly, the time frames involved in 36 CFR 223 subpart B do not meet the repeated expectations of reserved and outstanding mineral owners, thus the timber settlement procedures of Section 223.12 and Forest Service Manual (FSM) 2464 are utilized. Under the existing legal framework (36 CFR 223.12 and FSM 2464) mineral owners must either purchase the timber or sign a cut, skid, and deck agreement. Your letter repeats PIOGA's views, but direction set forth in Forest Service regulation and policy are clear that timber must be disposed of in a manner acceptable to the agency.

Thank you for your letter(s), and I look forward to working with your organization's members on specific proposals.

Sincerely,

LEANNE M. MARTEN
Forest Supervisor





United States
Department of
Agriculture

Forest
Service

Allegheny National Forest
Supervisor's Office

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Warren, PA 16365
(814) 723-5150
FAX (814) 726-1465

File Code: 6270-1

Date: August 6, 2010

Craig L. Mayer, Esq.
General Counsel
Pennsylvania General Energy, L.L.C.
120 Market Street
Warren, PA 16365

Dear Mr. Mayer:

Your Freedom of Information Act (FOIA) request, dated July 15, 2010, was received and assigned control number 10-14-ANF. You specifically requested: "All reports, materials, memorandum, and documents of any type in electronic, digital, or written form that:

- 1) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that have been submitted by producers since December 15, 2009.
- 2) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest Officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that were part of the enjoined Transition Environmental Impact Statement (TEIS) process
- 3) Show the number of oil and gas well development notifications by producer name, to include the number of wells included in each such notification, that have been submitted to the Allegheny National Forest since December 15, 2009, and,
- 4) Show the number of oil and gas wells "approved" to be drilled within the Allegheny National Forest since January 1, 2009, and the date of this request."

In response to item number one, there have been eight Notices To Proceed (NTPs) issued to oil and gas development proposals received between December 15, 2009, and July 15, 2010. The eight cases are B-85, B-86, B-87, B-90, B-91, M-206, M-207 and M-208 with a total of 104 wells. These cases are summarized in Table 1.

In response to item number two, the Allegheny National Forest has issued NTPs for 19 cases, totaling 283 wells that were part of the TEIS for the time period December 15, 2009 to July 15, 2010, as detailed in Table 1.



Table 1, Allegheny National Forest has issued Notice to Proceed for the following cases since
December 15, 2009 (December 15, 2009 -- July 15, 2010)

Case No.	Company Name	No. of Wells	NTP Sent	Part of the 1EIS Process
M-168	Pennsylvania General Energy	3	1/21/2010	yes
M-185	Pennsylvania General Energy	5	1/21/2010	yes
M-180	Pennsylvania General Energy	9	2/3/2010	yes
276	Catalyst Energy	8	2/4/2010	no
B-28	Duhring Resource Company	5	2/5/2010	no
B-7	Snyder Brothers	6	2/8/2010	no
B-70	A&S Production	3	2/25/2010	yes
M-175	Seneca	3	3/4/2010	yes
M-161	Pennsylvania General Energy	8	3/5/2010	yes
M-167	Pennsylvania General Energy	5	3/12/2010	yes
B-86	Gas and Oil Management	8	3/25/2010	no
B-85	Gas and Oil Management	8	3/30/2010	no
B-90	D&S Energy	3	3/30/2010	no
B-87	Gas and Oil Management	9	4/9/2010	no
B-67	Catalyst Energy	2	4/19/2010	yes
M-187	East Resources	6	4/21/2010	yes
B-060	Howard Drilling	10	4/22/2010	yes
B-073	Mead Oil	4	4/22/2010	yes
B-048	Duhring Resource Company	5	5/4/2010	no
M-191,192,193	Pennsylvania General Energy	24	5/4/2010	yes
M-177	ARG	47	5/5/2010	yes
M-186	Sheffield Land and Timber	50	5/10/2010	yes
M-202,206	Howard Drilling	12 (7-M202; 5-M206)	5/24/2010	no
M-174,197,190	Seneca	8	5/24/2010	yes
B-049	Duhring Resource Company	5	6/1/2010	no
B-039	Belden and Blake	21	6/3/2010	no
M-208	Cline Oil	5	6/8/2010	no
B-091	Minard Run Oil	20	6/8/2010	no
M-181	Pennsylvania General Energy	4	6/9/2010	yes
B-076	U.S. Energy	15 (of 75)	6/16/2010	yes
M-207	Sheffield Land & Timber	46	6/21/2010	no
M-201	Pennsylvania General Energy	6	6/24/2010	no
B-061	Snyder Brothers	19	7/6/2010	no
M-183,188,189	East Resources	69	7/7/2010	yes
B-071,072	Edward Oil	8	7/9/2010	yes
Total	35	469		

In response to item number three, the Allegheny National Forest has received notification of 32 cases, totaling 481 wells, since December 15, 2009, as detailed in Table 2

Table 2, Allegheny National Forest has received notification of the following proposals since December 15, 2009
(December 15, 2009 – July 15, 2010)

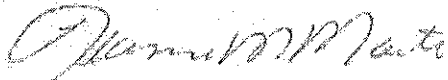
Case No.	Company Name	No. of Wells	Initial Notification
B-84	Snyder Brothers	18	1/6/2010
B-85	Gas & Oil Management	8	12/24/2009
B-86	Gas & Oil Management	8	12/24/2009
B-87	Gas & Oil Management	9	12/21/2009
B-88	East Resources	0*	1/13/2010
B-89	Duhring Resource Company	6	1/25/2010
B-90	D&S Energy	3	1/25/2010
B-91	Minard Run Oil Company	21	2/6/2010
B-92	Minard Run Oil Company	25	2/22/2010
B-93	Bearcat Oil Company, LLC	11	3/26/2010
B-94	Forest Chemical	10	4/20/2010
B-95	U.S. Energy	47	4/12/2010
B-96	Snyder Brothers	9	6/1/2010
B-97	MSL Oil and Gas	5	6/17/2010
B-98	MSL Oil and Gas	2	6/17/2010
B-99	Catalyst Energy	9	6/24/2010
B-100	D and S Energy	12	6/24/2010
M-205	East Resources	1*	12/31/2009
M-206	Howard Drilling	5	12/29/2009
M-207	Sheffield Land and Timber	50	12/20/2009
M-208	Cline Oil	5	1/6/2010
M-209	Hanley & Bird	1*	1/22/2010
M-210	Howard Drilling	12	2/1/2010
M-211	Howard Drilling	17	2/3/2010
M-212	Sheffield Land and Timber	50	1/19/2010
M-213	East Resources	61	2/24/2010
M-214	East Resources	8	2/24/2010
M-215	East Resources	1*	3/24/2010
M-216	East Resources	1*	3/24/2010
M-217	Seneca Resources	0	Combined with M-219 and M-220
M-218	Sheffield Land and Timber	50	4/26/2010
M-219	Seneca Resources	11	5/3/2010
M-220	Seneca Resources	5	5/3/2010
Total		481	
No. of projects		32	
* Pipeline proposal			
* Marcellus shale well proposal			
* Onkany well proposal			

In response to item number four, the Allegheny National Forest issued "Notices to Proceed" (NTP) for 374 wells for the time period of January 1, 2009, to December 31, 2009. There have been an additional 35 NTPs for 469 wells since January 1, 2010, for a total of 843 wells for the time period requested.

Pursuant to Title 7 Code of Federal Regulations (CFR), Subtitle A, Part 1, Subpart A, Appendix A, we are required to collect fees for search and duplication of records. The category of the request dictates the calculation of fees to be assessed. The Forest Service uses a threshold of \$25.00 to determine if the cost of collection exceeds the value of collection. In this case, the collection fee is below the threshold, so no bill for collection will be issued.

If you have questions, please contact FOIA Coordinator David Drake at (814) 728-6283 or dadrake@fs.fed.us.

Sincerely,

A handwritten signature in dark ink, appearing to read "Leanne M. Marten", is written over a faint, circular official stamp.

LEANNE M. MARTEN
Forest Supervisor

ALLEGHENY NATIONAL FOREST - OIL AND GAS PROGRAM PROPOSAL ORDERING (DRAFT - 01/06/10)

SMALL PACKAGES IN THE FORMER TRANSITION EIS

Company	Case #	TEIS Area	Date Submitted	Wells
MSL	B-036	3b	7/2/2008	2
Seneca	M-176	8b	1/16/2009	3
Seneca	M-175	20a-c	1/22/2009	16
Seneca	M-197	20a-c	6/16/2009	
Stateside	B-063	4d	3/18/2009	4
IDC	B-065	5	3/20/2009	1
Seneca	M-174	17a/c/d	4/7/2009	12
Seneca	M-190	15b	4/11/2009	1
Swamp Angel	B-069	2c/2d	4/27/2009	10
A&S	B-070	13	5/1/2009	3
Edward Oil	B-072	11b	5/7/2009	4
Edward Oil	B-071	6a	5/7/2009	4
Mead Oil	B-073	6b	5/7/2009	2
Snyder Brothers	284/B-025	4b	11/1/2007	3
Allegheny Enterprise	B-042	10	8/5/2008	11
Allegheny Enterprise	B-051	10	11/6/2008	
Belden & Blake	B-043	3d	8/6/2008	4
Catalyst	B-067	2a	4/9/2009	2
Catalyst	B-046	2b	9/26/2008	8
Duhring	M-194	17b	4/25/2009	1
Duhring	B-068	9a/b	4/30/2009	6
Duhring	B-074	9a/b	6/3/2009	
TOTAL				97

LARGE PACKAGES IN THE FORMER TRANSITION EIS

Company	Case #	TEIS Area	Date Submitted	Wells
South Shore	B-010	4a	1/14/2008	77
Howard Drilling	B-060	3c	1/28/2009	11
Seneca	B-062	7a-7f	2/2/2009	13
East Resources	M-165	11a	2/13/2009	73
East Resources		8a	2/24/2009	84
ARG	M-177	16a-d	3/11/2009	48
Keane	B-059	3a	4/9/2009	22
Sheffield L&TC	M-186	15a	5/1/2009	50
PGE		18a-d	2/3/2009	82
Natural Oil and Gas	M-198	19a-c	5/15/2009	44
Snyder Brothers	B-066	4a	4/3/2009	19
TOTAL				523

* = Marcellus well proposals

NEW PROPOSALS

Company	Case #	Date Submitted	Wells
Barnes	B-082	9/23/2009	6
Gas & Oil Mgt.	B-XXX	12/21/2009	8
Gas & Oil Mgt.	B-XXX	12/24/2009	8
Gas & Oil Mgt.	B-XXX	12/28/2009	10
Duhring	B-076	5/29/2009	5
Catalyst	M-199	7/11/2009	5
PGE *	M-200	8/18/2009	1
Duhring	B-078	8/20/2009	1
Duhring	B-079	8/20/2009	5
Duhring	B-080	8/20/2009	5
Duhring	B-081	8/20/2009	5
PGE	M-201	8/25/2009	6
Howard	M-202	12/17/2009	7
Sheffield Land & Timber	M-XXX	12/18/2009	50
Snyder Brothers	B-XXX	12/19/2009	6
Howard	M-XXX	12/30/2009	5
East Resources *	M-XXX	12/31/2009	1
Snyder Brothers	B-XXX	1/6/2009	18
TOTAL			152

ON-HOLD

Company	Case #	Reason	Wells
AB Resources	235	Company request	6
East Resources	B-038	Company request	12
US Energy	Area 1a	USFS to discuss with company	1515
Natural Oil and Gas	Area 1a	USFS to discuss with company	
US Energy	Area 4c	USFS to discuss with company	
			86
Catalyst	Area 4c	USFS to discuss with company	
TOTAL			1619

TOTAL ALL WELLS 2391

Exhibit 6
to

Supplemental Declaration of Douglas E. Kuntz



United States
Department of
Agriculture

Forest
Service

Allegheny National Forest
Supervisor's Office

4 Farm Colony Drive
Warren, PA 16365
(814) 723-5150
FAX (814) 726-1465

File Code: 2820-2

Date: October 18, 2010

Craig L. Mayer
Chairman, Allegheny National Forest Committee
Pennsylvania Independent Oil & Gas Association
115 VIP Drive, Suite 210
Wexford, PA 15090-7906

Dear Mr. Mayer:

I have reviewed your September 14, 2010, letter submitted on behalf of the Pennsylvania Independent Oil & Gas Association (PIOGA). This letter renewed your January 28th, March 16th and April 8th requests for a meeting to discuss various broad issues regarding processing applications for development of reserved and outstanding minerals on the Forest.

The issues you wish to discuss are still pending in federal court. I must, therefore, decline to meet with PIOGA, as it would be inappropriate for me to discuss litigation issues at this time. I encourage you to contact our legal counsel if you wish to discuss matters pending in litigation. Although I am unable to meet with the Association at this time, we have and will continue to meet and work cooperatively with individual PIOGA members to discuss and negotiate specific issues concerning their applications. This one-on-one communication and negotiation complies with the December 2009 *Minard Run* order and addresses specific issues in the context of local resource conditions. Many applications have been processed in accordance with the court's order since December. I want to emphasize that we continue to be available to meet with PIOGA members to discuss their site-specific concerns on pending applications. Please encourage them to contact us with any concerns they may have on their individual applications.

Your September 24th letter mentions two other concerns: (1) alleged "harassment" of Duhring Resources Inc., an Association member; and (2) the Association's "dissatisfaction" with review of your members' applications.

First, contrary to statements made by Mr. Stewart in his August 30, 2010, letter, there is not, and never has been, any harassment, discriminatory or unfair treatment towards his company. These erroneous allegations were addressed in the Forest's letter sent to Mr. Stewart dated September 3, 2010.

Second, we have worked diligently with all resources available to the Allegheny National Forest to move forward in the most effective and efficient manner to process proposals for oil and gas development. Our efforts to expeditiously process your members' applications will continue and are in full compliance with applicable laws and court rulings, including the December 15, 2009, Preliminary Injunction Order and March 2010 Order which stated:



[M]y order did not, and was not intended to, grant the drillers carte blanche to enter the ANF and commence drilling operations on the 61st day if unable to reach an accommodation with the Forest Service. This is because, while my opinion recognized that mineral estates are dominant, it also specifically held that Pennsylvania law requires the owner of the dominant mineral estate to exercise due regard for the servient estate so as to avoid and prevent undue damage to the surface. I want to make it clear that forbearance on the part of the drillers during the initial 60 day period is not in and of itself synonymous with "due regard." Depending upon the unique circumstances of any given case, a period of time longer than 60 days may be entirely appropriate and necessary in order for the dominant and servient estate holders to engage in a meaningful and cooperative accommodative effort.

Finally, regarding your inquiry on Pennsylvania General Energy Company, L.L.C. (PGE) FOIA requests, responses to the July 30, August 15, and August 31st requests have been sent.

Thank you for your letter. I look forward to continuing to work cooperatively with the Association's members on specific proposals.

Sincerely,



LEANNE M. MARTEN
Forest Supervisor

Exhibit 7
to

Supplemental Declaration of Douglas E. Kuntz



United States
Department of
Agriculture

Forest
Service

Allegheny National Forest
Supervisor's Office

4 Farm Colony Drive
Warren, PA 16365
(814) 723-5150
FAX (814) 726-1465

File Code: 6270

Date: August 12, 2011

Craig L. Mayer
General Counsel
Pennsylvania General Energy, L.L.C.
120 Market Street
Warren, PA 16365

Dear Mr. Mayer:

Your Freedom of Information Act (FOIA) request, dated July 6, 2011, was received and assigned control number 11-1882-R. You specifically requested: "All reports, materials, memorandum, and documents of any type in electronic, digital, or written form that is current as of July 1, 2011 and:

- 1) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that have been submitted by producers since December 15, 2009.
- 2) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest Officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that were part of the enjoined Transition Environmental Impact Statement (TEIS) process.
- 3) Show the number of oil and gas well development notifications by producer name, to include the number of wells included in each such notification, that have been submitted to the Allegheny National Forest since December 15, 2009, and,
- 4) Show the number of oil and gas wells "approved" to be drilled within the Allegheny National Forest since January 1, 2009 through July 1, 2011.

In response to item number one, there have been 39 Notices to Proceed (NTPs) issued for oil and gas development proposals received between December 15, 2009, and July 1, 2011. The 39 cases are B-84, B-85, B-86, B-87, B-90, B-91, B-092, B-093, B-94, B-095, B-097, B-098, B-100, B-101, B-102, B-104, B-105, B-107, B-108, B-113, B-115, B-116, B-117, B-118, B-125, B-128, B-129, B-130, B-132, B-136, M-205/215/216 (combined in one NTP), M-206, M-207, M-208, M-210, M-211, M-212, M-218 and M-229 for a total of 524 wells (and one case for a pipeline - B-103 and one for a seismic line - M-231). These cases are summarized in Table 1.

In response to item number two, the Allegheny National Forest has issued NTPs for 27 cases, totaling 330 wells that were part of the TEIS for the time period December 15, 2009 to July 1, 2011 as detailed in Table 1.



**Table 1, Allegheny National Forest has issued Notice to Proceed for the following cases since
December 15, 2009 (December 15, 2009 – July 1, 2011)**

Case No.	Company Name	No. of Wells	NTP Sent	Part of the TEIS Process
M-168	Pennsylvania General Energy	3	1/21/2010	yes
M-185	Pennsylvania General Energy	5	1/21/2010	yes
M-180	Pennsylvania General Energy	9	2/3/2010	yes
276	Catalyst Energy	8	2/4/2010	no
B-28	Duhring Resource Company	5	2/5/2010	no
B-7	Snyder Brothers	6	2/8/2010	no
B-70	A&S Production	3	2/25/2010	yes
M-175	Seneca	3	3/4/2010	yes
M-161	Pennsylvania General Energy	8	3/5/2010	yes
M-167	Pennsylvania General Energy	5	3/12/2010	yes
B-86	Gas and Oil Management	8	3/25/2010	no
B-85	Gas and Oil Management	8	3/30/2010	no
B-90	D&S Energy	3	3/30/2010	no
B-87	Gas and Oil Management	9	4/9/2010	no
B-67	Catalyst Energy	2	4/19/2010	yes
M-187	East Resources	6	4/21/2010	yes
B-060	Howard Drilling	10	4/22/2010	yes
B-073	Mead Oil	4	4/22/2010	yes
B-048	Duhring Resource Company	5	5/4/2010	no
M-191,192,193	Pennsylvania General Energy	24	5/4/2010	yes
M-177	ARG	47	5/5/2010	yes
M-186	Sheffield Land and Timber	50	5/10/2010	yes
M-202,206	Howard Drilling	12 (7-M202; 5-M206)	5/24/2010	no
M-174,197,190	Seneca	8	5/24/2010	yes
B-049	Duhring Resource Company	5	6/1/2010	no
B-039	Belden and Blake	21	6/3/2010	no
M-208	Cline Oil	5	6/8/2010	no
B-091	Minard Run Oil	20	6/8/2010	no
M-181	Pennsylvania General Energy	4	6/9/2010	yes
B-075	U.S. Energy	15 (of 75)	6/16/2010	yes
M-207	Sheffield Land & Timber	46	6/21/2010	no
M-201	Pennsylvania General Energy	6	6/24/2010	no
B-061	Snyder Brothers	19	7/6/2010	no
M-183,188,189	East Resources	69	7/7/2010	yes
B-071,072	Edward Oil	8	7/9/2010	yes
M-201	Seneca Seismic Line	0	7/21/2010	no
M-210,211	Howard Drilling	26	8/3/2010	no
B-19,20	Allegheny Enterprises	11	8/16/2010	no
M-163,178,179	Pennsylvania General Energy	7	8/16/2010	yes
B-069	Swamp Angel	5	8/18/2010	yes
B-103	MSL Oil Pipeline	0	9/3/2010	no
M-166	Pennsylvania General Energy	3	9/14/2010	yes
M-163	Pennsylvania General Energy	1	9/24/2010	yes
B-022	Allegheny Enterprises	5	10/4/2010	no
B-084	Snyder Brothers	18	10/7/2010	no
B-104	Catalyst Energy	1	10/15/2010	no
B-094	Forest Chemical	4	10/20/2010	no
B-113	September Corporation	2	10/25/2010	no
B-100	D&S Energy	9	11/4/2010	no
B-092	Minard Run	25	11/15/2010	no
B-093	Bearcat Oil Company	11	11/23/2010	no
B-097	MSL	5	11/23/2010	no
B-098	MSL	2	11/29/2010	no
M-205/215/216	East Resources	3	11/30/2010	no
B-095	U.S. Energy	46	12/14/2010	no
B-046	Catalyst Energy	9	12/17/2010	yes

B-102	Catalyst Energy	12	12/20/2010	no
M-212	Sheffield Land and Timber	45	1/12/2011	no
B-066	Snyder Brothers	18	1/12/2011	yes
B-107	Swamp Angel	2	1/12/2011	yes
B-115	Catalyst Energy	19	1/24/2011	no
B-116	Catalyst Energy	16	2/23/2011	no
B-117	Catalyst Energy	21	3/22/2011	no
B-132	Catalyst Energy	32	3/22/2011	no
B-130	Gas and Oil Management	7	3/22/2011	no
M-218	Sheffield Land and Timber	29	3/29/2011	no
B-105	Sylvan Energy	2	4/6/2011	no
B-068	Duhring Resources	2	4/15/2011	yes
B-128	U.S. Energy Development	11	4/15/2011	no
B-129	A&S Productions	8	4/26/2011	no
B-108	U.S. Energy	25	6/8/2011	no
M-231	Seneca Resources Seismic Line	0	6/9/2011	no
M-229	Duhring Resources	5	6/16/2011	no
B-136	D&S Energy	4	6/17/2011	no
B-118	Catalyst Energy	4	6/3/2011	no
B-101	Papco	10	6/30/2011	no
B-125	Belden and Blake	16	7/1/2011	no
Total	77	955		

In response to item number three, the Allegheny National Forest has received notification of 102 cases, totaling 1,074 wells, since December 15, 2009, as detailed in Table 2.

Table 2, Allegheny National Forest has received notification of the following proposals since December 15, 2009 (December 15, 2009 – July 1, 2011)

Case No.	Company Name	No. of Wells	Initial Notification
B-84	Snyder Brothers	18	1/6/2010
B-85	Gas & Oil Management	8	12/24/2009
B-86	Gas & Oil Management	8	12/24/2009
B-87	Gas & Oil Management	9	12/21/2009
B-88	East Resources	0*	1/13/2010
B-89	Duhring Resource Company	6	1/25/2010
B-90	D&S Energy	3	1/25/2010
B-91	Minard Run Oil Company	21	2/6/2010
B-92	Minard Run Oil Company	25	2/22/2010
B-93	Bearcat Oil Company, LLC	11	3/26/2010
B-94	Forest Chemical	10	4/20/2010
B-95	U.S. Energy	46	4/12/2010
B-96	Snyder Brothers	9	6/1/2010
B-97	MSL Oil and Gas	5	6/17/2010
B-98	MSL Oil and Gas	2	6/17/2010
B-99	Catalyst Energy	9	6/24/2010
B-100	D&S Energy	9	6/24/2010
B-101	Papco	10	7/24/2010
B-102	Catalyst	11	8/3/2010
B-103	MSL	0*	8/18/2010
B-104	Catalyst Energy	1	8/18/2010

B-105	Sylvan Energy	2	8/18/2010
B-106	Sylvan Energy	2	8/18/2010
B-107	Swamp Angel	2	8/18/2010
B-108	U.S. Energy	36	8/19/2010
B-109	U.S. Energy	24	8/25/2010
B-110	U.S. Energy	30	9/10/2010
B-111	U.S. Energy	21	9/10/2010
B-112	Sylvan Energy	2	9/14/2010
B-113	September Corporation	2	10/5/2010
B-114	Seneca Resources	0*	10/12/2010
B-115	Catalyst Energy	19	8/18/2010
B-116	Catalyst Energy	16	8/3/2010
B-117	Catalyst Energy	21	8/3/2010
B-118	Catalyst Energy	4	8/3/2010
B-119	Catalyst Energy	4	8/3/2010
B-120	A & L Oil and Gas	2	11/9/2010
B-121	Catalyst Energy	9	11/17/2010
B-122	Duhring Resources	5	11/18/2010
B-123	Duhring Resources	5	12/12/2010
B-124	Belden and Blake	18	12/8/2010
B-125	Belden and Blake	9	12/8/2010
B-126	Belden and Blake	10	12/8/2010
B-127	Belden and Blake	10	12/8/2010
B-128	U.S. Energy	11	6/8/2009
B-129	A&S Productions	8	12/7/2010
B-130	Gas & Oil Management	7	12/20/2010
B-131	Duhring Resources	5	12/23/2010
B-132	Catalyst Energy	32	8/18/2010
B-133	Catalyst Energy	4	12/27/2010
B-134	D&S Energy	2	1/3/2011
B-135	U.S. Energy	9	12/27/2010
B-136	Edward Oil	5	1/5/2011
B-137	Duhring Resources	6	1/7/2011
B-138	Farrington & Hepler Oil and Gas	10	1/11/2011
B-139	R&N Resources	2	1/27/2011
B-140	D&S Energy	6	1/3/2011
B-141	Prenwell, LLC	2	3/4/2011
B-142	Allshouse Excavation	5	3/11/2011
B-143	Sylvan Energy	2	3/21/2011
B-144	U.S. Energy	10	3/21/2011
B-145	U.S. Energy	20	3/21/2011
B-146	U.S. Energy	6	3/21/2011
B-147	Papco, Inc.	11	4/4/2011
B-148	Sylvan Energy	2	4/5/2011

B-149	BF Adventures	5	4/12/2011
B-150	U.S. Energy	44	4/12/2011
B-151	Gas & Oil Management	8	4/22/2011
B-152	Minard Run Oil Company	10	5/21/2011
B-153	Minard Run Oil Company	5	6/10/2011
M-205	East Resources	1 [#]	12/31/2009
M-206	Howard Drilling	5	12/29/2009
M-207	Sheffield Land and Timber	50	12/20/2009
M-208	Cline Oil	5	1/6/2010
M-209	Hanley & Bird	1 ^{\$}	1/22/2010
M-210	Howard Drilling	12	2/1/2010
M-211	Howard Drilling	17	2/3/2010
M-212	Sheffield Land and Timber	50	1/19/2010
M-213	East Resources	61	2/24/2010
M-214	East Resources	8	2/24/2010
M-215	East Resources	1 [#]	3/24/2010
M-216	East Resources	1 [#]	3/24/2010
M-217	Seneca Resources	0	Combined with M-219 and M-220
M-218	Sheffield Land and Timber	50	4/26/2010
M-219	Seneca Resources	11	5/3/2010
M-220	Seneca Resources	5	5/3/2010
M-221	Seneca Resources	0*	8/18/2010
M-222	ARG Resources	0	11/13/2010
M-223	URS	0	12/7/2010
M-224	East Resources	0*	12/8/2010
M-225	East Resources	0*	12/8/2010
M-226	Pennsylvania General Energy	3	1/19/2011
M-227	Howard Drilling	3	1/19/2011
M-228	Pennsylvania General Energy	20	4/4/2011
M-229	Duhring Resources	4	4/4/2011
M-230	Bald Hill Oil	3	4/11/2011
M-231	Seneca Resources	0*	4/21/2011
M-233	Seneca Resources	0*	4/28/2011
M-234	NFG	0*	4/20/2011
M-235	NFG	0*	4/26/2011
M-236	ARG Resources	51	6/3/2011
M-237	Pennsylvania General Energy	1	6/9/2011
Total		1,074	
No. of projects		102	
*Pipeline proposal			
#Marcellus shale well proposal			
\$Oriskany well proposal			

NOTES:

Case M-223 abandoned drill pit cleanup

Case M-225 water tank storage and pipe line

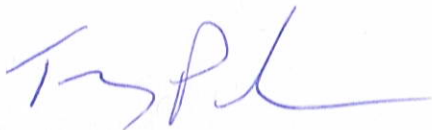
Case M-236 replaces M-222

In response to item number four, the Allegheny National Forest issued "Notices to Proceed" (NTP) for 374 wells for the time period of January 1, 2009 to December 31, 2009. There have been an additional 77 NTP's for 955 wells since January 1, 2010 for a total of 1,329 wells for the time period requested.

Pursuant to Title 7 Code of Federal Regulations (CFR), Subtitle A, Part 1, Subpart A, Appendix A, we are required to collect fees for search and duplication of records. The category of the request dictates the calculation of fees to be assessed. The Forest Service uses a threshold of \$25.00 to determine if the cost of collection exceeds the value of collection. In this case, the collection fee is below the threshold, so no bill for collection will be issued.

If you have questions, please contact FOIA Coordinator David Drake at (814) 728-6283 or dadrake@fs.fed.us.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Tracy Parker', with a long horizontal flourish extending to the right.

TRACY PARKER

Acting Forest Supervisor

Exhibit 8
to

Supplemental Declaration of Douglas E. Kuntz



United States
Department of
Agriculture

Forest
Service

Allegheny National Forest
Supervisor's Office

4 Farm Colony Drive
Warren, PA 16365
(814) 723-5150
FAX (814) 726-1465

File Code: 6270

Date: October 28, 2011

Craig L. Mayer
General Counsel
Pennsylvania General Energy
120 Market Street
Warren, PA 16365

Dear Mr. Mayer:

Your Freedom of Information Act (FOIA) request, dated October 4, 2011, was received and assigned control number 12-0375-R. You specifically requested: "All reports, materials, memorandum, and documents of any type in electronic, digital, or written form that is current as of October 1, 2011, and:

- 1) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that have been submitted by producers since December 15, 2009.
- 2) Show the number of "notices to proceed," by producer name, that have been delivered or mailed by Allegheny National Forest Officials to oil and gas producers since December 15, 2009, in response to oil and gas development notifications that were part of the enjoined Transition Environmental Impact Statement (TEIS) process.
- 3) Show the number of oil and gas well development notifications by producer name, to include the number of wells included in each such notification, that have been submitted to the Allegheny National Forest since December 15, 2009.
- 4) Show the number of oil and gas wells "approved" to be drilled within the Allegheny National Forest since January 1, 2009 through October 1, 2011.

In response to item number one, there have been 53 Notices to Proceed (NTPs) issued for oil and gas development proposals received between December 15, 2009, and October 1, 2011. The 53 cases are B-84, B-85, B-86, B-87, B-90, B-91, B-092, B-093, B-94, B-095, B-097, B-098, B-100, B-101, B-102, B-104, B-105, B-107, B-108, B-109, B-113, B-115, B-116, B-117, B-118, B-125, B-126, B-128, B-129, B-130, B-132, B-133, B-136, B-142, B-147, B-151, B-152, B-153, M-205/215/216 (combined in one NTP), M-206, M-207, M-208, M-210, M-211, M-212, M-218, M-226, M-229, M-230, M-232, M-236 and M-237 for a total of 656 wells (two cases for pipelines, B-103 and M-235 and one for a seismic line - M-231). These cases are summarized in Table 1.

In response to item number two, the Allegheny National Forest has issued NTPs for 28 cases, totaling 331 wells that were part of the TEIS for the time period December 15, 2009, to October 1, 2011, as detailed in Table 1.



Table 1, Allegheny National Forest has issued Notice to Proceed for the following cases since
December 15, 2009 (December 15, 2009 – October 1, 2011)

Case No.	Company Name	No. of Wells	NTP Sent	Part of the TEIS Process
M-168	Pennsylvania General Energy	3	1/21/2010	yes
M-185	Pennsylvania General Energy	5	1/21/2010	yes
M-180	Pennsylvania General Energy	9	2/3/2010	yes
276	Catalyst Energy	8	2/4/2010	no
B-28	Duhring Resource Company	5	2/5/2010	no
B-7	Snyder Brothers	6	2/8/2010	no
B-70	A&S Production	3	2/25/2010	yes
M-175	Seneca	3	3/4/2010	yes
M-161	Pennsylvania General Energy	8	3/5/2010	yes
M-167	Pennsylvania General Energy	5	3/12/2010	yes
B-86	Gas and Oil Management	8	3/25/2010	no
B-85	Gas and Oil Management	8	3/30/2010	no
B-90	D&S Energy	3	3/30/2010	no
B-87	Gas and Oil Management	9	4/9/2010	no
B-67	Catalyst Energy	2	4/19/2010	yes
M-187	East Resources	6	4/21/2010	yes
B-060	Howard Drilling	10	4/22/2010	yes
B-073	Mead Oil	4	4/22/2010	yes
B-048	Duhring Resource Company	5	5/4/2010	no
M-191,192,193	Pennsylvania General Energy	24	5/4/2010	yes
M-177	ARG	47	5/5/2010	yes
M-186	Sheffield Land and Timber	50	5/10/2010	yes
M-202,206	Howard Drilling	12 (7-M202; 5-M206)	5/24/2010	no
M-174,197,190	Seneca	8	5/24/2010	yes
B-049	Duhring Resource Company	5	6/1/2010	no
B-039	Belden and Blake	21	6/3/2010	no
M-208	Cline Oil	5	6/8/2010	no
B-091	Minard Run Oil	20	6/8/2010	no
M-181	Pennsylvania General Energy	4	6/9/2010	yes
B-075	U.S. Energy	15 (of 75)	6/16/2010	yes
M-207	Sheffield Land & Timber	46	6/21/2010	no
M-201	Pennsylvania General Energy	6	6/24/2010	no
B-061	Snyder Brothers	19	7/6/2010	no
M-183,188,189	East Resources	69	7/7/2010	yes
B-071,072	Edward Oil	8	7/9/2010	yes
M-201	Seneca Seismic Line	0	7/21/2010	no
M-210,211	Howard Drilling	26	8/3/2010	no
B-19,20	Allegheny Enterprises	11	8/16/2010	no
M-163,178,179	Pennsylvania General Energy	7	8/16/2010	yes
B-069	Swamp Angel	5	8/18/2010	yes
B-103	MSL Oil Pipeline	0	9/3/2010	no
M-166	Pennsylvania General Energy	3	9/14/2010	yes
M-163	Pennsylvania General Energy	1	9/24/2010	yes
B-022	Allegheny Enterprises	5	10/4/2010	no
B-084	Snyder Brothers	18	10/7/2010	no
B-104	Catalyst Energy	1	10/15/2010	no
B-094	Forest Chemical	4	10/20/2010	no
B-113	September Corporation	2	10/25/2010	no
B-100	D&S Energy	9	11/4/2010	no
B-092	Minard Run	25	11/15/2010	no
B-093	Bearcat Oil Company	11	11/23/2010	no
B-097	MSL	5	11/23/2010	no
B-098	MSL	2	11/29/2010	no
M-205/215/216	East Resources	3	11/30/2010	no
B-095	U.S. Energy	46	12/14/2010	no
B-046	Catalyst Energy	9	12/17/2010	yes
B-102	Catalyst Energy	12	12/20/2010	no
M-212	Sheffield Land and Timber	45	1/12/2011	no
B-066	Snyder Brothers	18	1/12/2011	yes
B-107	Swamp Angel	2	1/12/2011	yes

B-115	Catalyst Energy	19	1/24/2011	no
B-116	Catalyst Energy	16	2/23/2011	no
B-117	Catalyst Energy	21	3/22/2011	no
B-132	Catalyst Energy	32	3/22/2011	no
B-130	Gas and Oil Management	7	3/22/2011	no
M-218	Sheffield Land and Timber	29	3/29/2011	no
B-105	Sylvan Energy	2	4/6/2011	no
B-068	Duhring Resources	2	4/15/2011	yes
B-128	U.S. Energy Development	11	4/15/2011	no
B-129	A&S Productions	8	4/26/2011	no
B-108	U.S. Energy	25	6/8/2011	no
M-231	Seneca Resources Seismic Line	0	6/9/2011	no
M-229	Duhring Resources	5	6/16/2011	no
B-136	D&S Energy	4	6/17/2011	no
B-118	Catalyst Energy	4	6/3/2011	no
B-101	Papco	10	6/30/2011	no
B-125	Belden and Blake	16	7/1/2011	no
B-109	U.S. Energy	17	7/27/2011	no
B-079	Duhring Resource Company	5	7/29/2011	no
M-226	Pennsylvania General Energy	2	8/5/2011	no
B-126	Belden and Blake	13	8/9/2011	no
B-142	Allshouse	5	8/22/2011	no
B-152	Minard Run	10	8/23/2011	no
M-230	Bald Hill Oil	3	8/24/2011	no
B-133	Duhring Resources	4	8/26/2011	no
B-151	Gas and Oil Management	8	8/31/2011	no
B-153	MSL	5	8/31/2011	no
M-235	National Fuel Gas Pipeline	0	9/2/2011	no
B-065	IDC Energy	1	9/2/2011	yes
M-232	Batista Oil	2	9/21/2011	no
M-236	ARG Resources	51	9/22/2011	no
M-237	Pennsylvania General Energy	1	9/22/2011	no
B-147	Papco	11	9/30/2011	no
Total	93	1093		

In response to item number three, the Allegheny National Forest has received notification of 116 cases, totaling 1,188 wells, since December 15, 2009, as detailed in Table 2.

Table 2, Allegheny National Forest has received notification of the following proposals since December 15, 2009 (December 15, 2009 – October 1, 2011)

Case No.	Company Name	No. of Wells	Initial Notification
B-84	Snyder Brothers	18	1/6/2010
B-85	Gas & Oil Management	8	12/24/2009
B-86	Gas & Oil Management	8	12/24/2009
B-87	Gas & Oil Management	9	12/21/2009
B-88	East Resources	0*	1/13/2010
B-89	Duhring Resource Company	6	1/25/2010
B-90	D&S Energy	3	1/25/2010
B-91	Minard Run Oil Company	21	2/6/2010
B-92	Minard Run Oil Company	25	2/22/2010
B-93	Bearcat Oil Company, LLC	11	3/26/2010
B-94	Forest Chemical	10	4/20/2010
B-95	U.S. Energy	46	4/12/2010
B-96	Snyder Brothers	9	6/1/2010
B-97	MSL Oil and Gas	5	6/17/2010
B-98	MSL Oil and Gas	2	6/17/2010

B-99	Catalyst Energy	9	6/24/2010
B-100	D&S Energy	9	6/24/2010
B-101	Papco	10	7/24/2010
B-102	Catalyst	11	8/3/2010
B-103	MSL	0*	8/18/2010
B-104	Catalyst Energy	1	8/18/2010
B-105	Sylvan Energy	2	8/18/2010
B-106	Sylvan Energy	2	8/18/2010
B-107	Swamp Angel	2	8/18/2010
B-108	U.S. Energy	36	8/19/2010
B-109	U.S. Energy	24	8/25/2010
B-110	U.S. Energy	30	9/10/2010
B-111	U.S. Energy	21	9/10/2010
B-112	Sylvan Energy	2	9/14/2010
B-113	September Corporation	2	10/5/2010
B-114	Seneca Resources	0*	10/12/2010
B-115	Catalyst Energy	19	8/18/2010
B-116	Catalyst Energy	16	8/3/2010
B-117	Catalyst Energy	21	8/3/2010
B-118	Catalyst Energy	4	8/3/2010
B-119	Catalyst Energy	4	8/3/2010
B-120	A & L Oil and Gas	2	11/9/2010
B-121	Catalyst Energy	5	11/17/2010
B-122	Duhring Resources	5	11/18/2010
B-123	Duhring Resources	5	12/2/2010
B-124	Belden and Blake	18	12/8/2010
B-125	Belden and Blake	9	12/8/2010
B-126	Belden and Blake	10	12/8/2010
B-127	Belden and Blake	10	12/8/2010
B-128	U.S. Energy	11	6/8/2009
B-129	A&S Productions	8	12/7/2010
B-130	Gas & Oil Management	7	12/20/2010
B-131	Duhring Resources	5	12/23/2010
B-132	Catalyst Energy	32	8/18/2010
B-133	Catalyst Energy	4	12/27/2010
B-134	D&S Energy	2	1/3/2011
B-135	U.S. Energy	9	12/27/2010
B-136	Edward Oil	5	1/5/2011
B-137	Duhring Resources	6	1/7/2011
B-138	Farrington & Hepler Oil and Gas	10	1/11/2011
B-139	R&N Resources	2	1/27/2011
B-140	D&S Energy	6	1/3/2011
B-141	Prenwell, LLC	2	3/4/2011
B-142	Allshouse Excavation	5	3/11/2011
B-143	Sylvan Energy	2	3/21/2011

B-144	U.S. Energy	10	3/21/2011
B-145	U.S. Energy	20	3/21/2011
B-146	U.S. Energy	6	3/21/2011
B-147	Papco, Inc.	11	4/4/2011
B-148	Sylvan Energy	2	4/5/2011
B-149	BF Adventures	5	4/12/2011
B-150	U.S. Energy	44	4/12/2011
B-151	Gas & Oil Management	8	4/22/2011
B-152	Minard Run Oil Company	10	5/21/2011
B-153	Minard Run Oil Company	5	6/10/2011
B-154	Shell (SWEPI)	1 [#]	7/22/2011
B-155	Duhring Resource Company	5	7/25/2011
B-156	Duhring Resource Company	10	7/25/2011
B-157	Duhring Resource Company	4	7/25/2011
B-158	Duhring Resource Company	5	7/25/2011
B-159	Catalyst Energy	4	11/17/2010
B-160	Catalyst Energy	5	8/15/2011
B-161	D&S Energy	24	8/23/2011
B-162	SWEPI LP	1 [#]	9/26/2011
B-163	MSL Oil and Gas	5	9/29/2011
M-205	East Resources	1 [#]	12/31/2009
M-206	Howard Drilling	5	12/29/2009
M-207	Sheffield Land and Timber	50	12/20/2009
M-208	Cline Oil	5	1/6/2010
M-209	Hanley & Bird	1 ^{\$}	1/22/2010
M-210	Howard Drilling	12	2/1/2010
M-211	Howard Drilling	17	2/3/2010
M-212	Sheffield Land and Timber	50	1/19/2010
M-213	East Resources	61	2/24/2010
M-214	East Resources	8	2/24/2010
M-215	East Resources	1 [#]	3/24/2010
M-216	East Resources	1 [#]	3/24/2010
M-217	Seneca Resources	0	Combined with M-219 and M-220
M-218	Sheffield Land and Timber	50	4/26/2010
M-219	Seneca Resources	11	5/3/2010
M-220	Seneca Resources	5	5/3/2010
M-221	Seneca Resources	0*	8/18/2010
M-222	ARG Resources	0	11/13/2010
M-223	URS	0	12/7/2010
M-224	East Resources	0*	12/8/2010
M-225	East Resources	0*	12/8/2010
M-226	Pennsylvania General Energy	3	1/19/2011
M-227	Howard Drilling	3	1/19/2011
M-228	Pennsylvania General Energy	20	4/4/2011
M-229	Duhring Resources	4	4/4/2011

M-230	Bald Hill Oil	3	4/11/2011
M-231	Seneca Resources	0*	4/21/2011
M-232	Batista Oil	2	5/3/2011
M-233	Seneca Resources	0*	4/28/2011
M-234	NFG	0*	4/20/2011
M-235	NFG	0*	4/26/2011
M-236	ARG Resources	51	6/3/2011
M-237	Pennsylvania General Energy	1	6/9/2011
M-238	Sheffield Land & Timber	50	8/1/2011
M-239	Seneca Resources	1 [#]	9/22/2011
M-240	SWEPI LP	1 [#]	9/26/2011
Total		1,188	
No. of projects		116	
*Pipeline proposal			
[#] Marcellus shale well proposal			
^{\$} Oriskany well proposal			

NOTES:

Case M-223 abandoned drill pit cleanup

Case M-225 water tank storage and pipe line

In response to item number four, the Allegheny National Forest issued "Notices to Proceed" (NTP) for 374 wells for the time period of January 1, 2009, to December 31, 2009. There have been an additional 93 NTP's for 1,093 wells since January 1, 2010, for a total of 1,467 wells for the time period requested.

Pursuant to Title 7 Code of Federal Regulations (CFR), Subtitle A, Part 1, Subpart A, Appendix A, we are required to collect fees for search and duplication of records. The category of the request dictates the calculation of fees to be assessed. The Forest Service uses a threshold of \$25.00 to determine if the cost of collection exceeds the value of collection. In this case, the collection fee is below the threshold, so no bill for collection will be issued.

If you have questions, please contact FOIA Coordinator David Drake at (814) 728-6283 or dadrake@fs.fed.us.

Sincerely,

TRACY PARKER
Acting Forest Supervisor

Exhibit 9
to

Supplemental Declaration of Douglas E. Kuntz

RIN Data**USDA/FS****RIN:** 0596-AC87**Publication ID:** Fall 2010**Title:** Management of National Forest System Surface Resources With Privately Held Mineral Estates

Abstract: The Forest Service is preparing to promulgate regulations to provide clarity and direction on the management of the National Forest System surface resources when the mineral estate is privately held. The proposed regulation will be consistent with the Access to Non-Federal Lands regulations at 36 CFR subpart D. The proposed rule making is also intended to fulfill the mandate set forth by section 2508 of the Energy Policy Act of 1992, Public Law 102-486, 106 Stat. 3108-3109, which has been codified at 30 U.S.C. 226(o), concerning private oil and gas development on the Allegheny National Forest. Section 2508 requires 60-day prior notification and clarifies content requirements of the notification. The Forest Service invites public comment as it prepares for this rule making.

Agency: Department of Agriculture(USDA)**Priority:** Substantive, Nonsignificant**RIN Status:** Previously published in the Unified Agenda**Agenda Stage of Rulemaking:** Proposed Rule Stage**Major:** No**Unfunded Mandates:** No**CFR Citation:** Not Yet Determined (To search for a specific CFR, visit the [Code of Federal Regulations.](#))**Legal Authority:** Not Yet Determined**Legal Deadline:** None**Timetable:**

Action	Date	FR Cite
ANPRM	12/29/2008	73 FR 79424
ANPRM Comment Period End	02/27/2009	
ANPRM Comment Period Reopened	03/12/2009	74 FR 10700
ANPRM Comment Period End	04/13/2009	
NPRM	12/00/2010	

Regulatory Flexibility Analysis Required: No**Government Levels Affected:** None**Small Entities Affected:** No**Federalism:** No**Included in the Regulatory Plan:** No**RIN Data Printed in the FR:** No**Agency Contact:**

Lorrie Parker

Regulatory Analyst

Department of Agriculture

Forest Service

ATTN: ORMS, D&R Branch, 1400 Independence Avenue SW,

Washington, DC 20250-0003

Phone:202 205-6560

Fax:202 260-6539

Email: lparker@fs.fed.us

Exhibit 10
to

Supplemental Declaration of Douglas E. Kuntz

RIN Data**USDA/FS****RIN:** 0596-AC87**Publication ID:** Spring 2011**Title:** Management of National Forest System Surface Resources With Privately Held Mineral Estates

Abstract: The Forest Service is preparing to promulgate regulations to provide clarity and direction on the management of the National Forest System surface resources when the mineral estate is privately held. The proposed regulation will be consistent with the Access to Non-Federal Lands regulations at 36 CFR subpart D. The proposed rule making is also intended to fulfill the mandate set forth by section 2508 of the Energy Policy Act of 1992, Public Law 102-486, 106 Stat. 3108-3109, which has been codified at 30 U.S.C. 226(o), concerning private oil and gas development on the Allegheny National Forest. Section 2508 requires 60-day prior notification and clarifies content requirements of the notification. The Forest Service invites public comment as it prepares for this rule making.

Agency: Department of Agriculture(USDA)**Priority:** Substantive, Nonsignificant**RIN Status:** Previously published in the Unified Agenda**Agenda Stage of Rulemaking:** Proposed Rule Stage**Major:** No**Unfunded Mandates:** No**CFR Citation:** Not Yet Determined (To search for a specific CFR, visit the [Code of Federal Regulations.](#))**Legal Authority:** Not Yet Determined**Legal Deadline:** None**Timetable:**

Action	Date	FR Cite
ANPRM	12/29/2008	<u>73 FR 79424</u>
ANPRM Comment Period End	02/27/2009	
ANPRM Comment Period Reopened	03/12/2009	<u>74 FR 10700</u>
ANPRM Comment Period Reopened End	04/13/2009	
NPRM	07/00/2011	

Regulatory Flexibility Analysis Required: No**Government Levels Affected:** None**Small Entities Affected:** No**Federalism:** No**Included in the Regulatory Plan:** No**RIN Data Printed in the FR:** No**Agency Contact:**

Lorrie Parker

Regulatory Analyst

Department of Agriculture

Forest Service

ATTN: ORMS, D&R Branch, 1400 Independence Avenue SW,

Washington, DC 20250-0003

Phone:202 205-6560

Fax:202 260-6539

Email: lsarker@fs.fed.us

Exhibit 11
to

Supplemental Declaration of Douglas E. Kuntz



United States
Department of
Agriculture

Forest
Service

Colville
National
Forest

Headquarters Office
765 South Main
Colville, WA 99114
509-684-7000
Fax: 509-684-7280

File Code: 6270

Date: April 15, 2011

David C. Fredley
3292 Scotia Road
Newport, WA 99156

Dear Mr. Fredley:

This letter responds to your April 4, 2011 Freedom of Information Act (FOIA) request submitted to this office. You requested information related to Tribal Consultation regarding the development of the 238 regulations – Non Federal Mineral Rights on NFS lands.

Enclosed are the documents available that respond to your request. Disposition of Items #2 and #3 are discussed below.

Item Number	Document Request	Documents
1	The signed letter and attachments sent to the tribal Chair Nenema of the Kalispel Tribe concerning consultation about the development of 2830 regulations – Non Federal Mineral Rights on NFS lands.	1 - Letter to Mr. Glen Nenema dated 03/21/2011 2 – Attachment 1 – Proposed Regulations: Exercise of Non-Federal Mineral Rights SUMMARY dated 02/09/2011 3 - Proposed Regulations: Exercise of Non-Federal Mineral Rights – BACKGROUND 4 - Attachment 1 – Proposed Regulations: Exercise of Non-Federal Mineral Rights FREQUENTLY ASKED QUESTIONs dated 02/09/2011
2	Any written response by the Kalispel Tribe to that <i>[development of 2830 regulations – Non Federal Mineral Rights on NFS lands]</i> consultation solicitation	See below for more information.
3	The latest version of the draft regulation <i>[development of 2830 regulations – Non Federal Mineral Rights on NFS lands]</i>	See below for more information.
4	The instructions received by the Forest for initiating Tribal Consultation	5- Reply_Due_01.27.2011_FS_correspondence.doc



Your request for Items #2 (Any written response by the Kalispel Tribe to that *[development of 2830 regulations – Non Federal Mineral Rights on NFS lands]* consultation solicitation) and #3 above (The latest version of the draft regulation *[development of 2830 regulations – Non Federal Mineral Rights on NFS lands]*) has been forwarded to the Regional Forester for response. If you would like to check on the status of your request, you may contact Regional FOIA Specialist, Rich Thomas, at (503) 808-2268.

Pursuant to Title 7 Code of Federal Regulations (CFR), Subtitle A, Part 1, Subpart A, Appendix A, the fee to provide these records is waived because the amount of the fee is less than \$25.00 and the cost of collecting the fee would be equal to or greater than the fee itself.

If you have any further questions regarding this project please feel free to contact Bill Shields at 765 South Main, Colville, WA 99114, tel. (509) 684-7235. You may also contact me at the address above. The reference number for this request is #CNF-11-04.

Sincerely,



LAURA JO WEST
Forest Supervisor

Enclosures (5)



United States
Department of
Agriculture

Forest
Service

Colville
National
Forest

Headquarters Office
765 South Main
Colville, WA 99114
509-684-7000
Fax: 509-684-7280

File Code: 2380/1560

Date: March 21, 2011

Mr. Glen Nenema
Chair
Kalispel Tribe of Indians
PO Box 39
Usk, WA 99180

Dear Mr. Nenema:

The Forest Service is developing regulations for management of National Forest System (NFS) surface resources when the mineral estate is not Federally owned. Enclosed are three documents explaining a summary of the proposed regulations, background information on the proposed regulations, and some Frequently Asked Questions regarding the proposed regulations.

The Forest Service is committed to government-to-government consultation on agency policies that may substantially affect the Kalispel Tribe. Please review the enclosures and contact me if you wish to consult on the proposed regulations.

Sincerely,

/s/ Laura Jo West
LAURA JO WEST
Forest Supervisor

Enclosures (3)





Proposed Regulations: Exercise of Non-Federal Mineral Rights

SUMMARY

February 9, 2011

Introduction

The Forest Service is in the process of developing regulations for management of National Forest System (NFS) surface resources where the mineral estate is not Federally owned. An advance notice of proposed rulemaking and request for comment was published in the Federal Register on December 29, 2008.

The Forest Service is developing these regulations in order to protect NFS lands and resources from unreasonable effects resulting from the exploration and development of non-Federally owned minerals. The regulations being developed would apply to the development of all non-Federal mineral resources underlying NFS lands. They would provide direction to operators for conducting activities associated with the exercise of both reserved and outstanding mineral rights. The regulations would provide for operator submission of a Plan of Operations for review by the Forest Service with respect to its impact on NFS lands and resources. Certain specified provisions of the regulations would not apply to existing operations.

Key Points of Regulations Being Developed

The regulations being developed would:

- Require advance notice of casual use, notice of proposed operations, and approval of a Plan of Operations prior to commencement of surface disturbing activities.
- Specify what information needs to be included in a Plan of Operations in order for the Forest Service to review it.
- Commit the Forest Service to notifying the operator of the type of documentation the Forest Service will use to comply with the National Environmental Policy Act in its review of the proposed activity.
- Identify the conditions under which the Forest Service can approve a Plan of Operations, disapprove a Plan of Operations, or defer action on a Plan of Operations pending actions that an operator can take to enable approval.
- Provide options for disposal of any timber that must be cut to accommodate operations.
- Establish general operating requirements designed to protect NFS land and resources and require them to be reflected in the Plan of Operations.
- Commit the Forest Service to issuing a notice of noncompliance if an operator fails to comply with the regulations, an approved Plan of Operations, or other applicable requirements.
- Specify that civil and criminal remedies may be invoked for noncompliant operations.
- Impose certain requirements on closure of operations and reclamation (subject to deed terms), including a requirement for an approved Closure and Reclamation Plan.
- Specify that bonds may be required on operations.
- Prohibit access to or withdrawal or impoundment of water resources from NFS lands, with some specified exceptions.
- Specify conditions under which mineral materials (i.e. sand, gravel, stone, etc.) from NFS lands may be utilized for an operation.



Proposed Regulation: Exercise of Non-Federal Mineral Rights

BACKGROUND

February 9, 2011

Introduction

The Forest Service is developing regulations for management of National Forest System (NFS) surface resources where the mineral estate is not Federally owned. Non-Federal mineral rights are categorized as either *reserved* or *outstanding*. *Reserved* mineral rights are those retained by a grantor in a deed conveying land to the United States. *Outstanding* mineral rights are those rights owned by a party other than the surface owner at the time the surface was conveyed to the United States.

The Forest Service is developing regulations in order to:

- Establish a consistent approach to the management of activities associated with non-Federal mineral rights on NFS lands across the country;
- Establish a management approach for non-Federal mineral activities similar to that used for activities associated with Federal mineral estates;
- Improve the effectiveness of Forest Service management of non-Federal mineral activities;
- Fulfill the requirement in the Energy Policy Act of 1992 to promulgate regulations establishing terms and conditions for activities associated with certain outstanding mineral rights on the Allegheny National Forest.

Forest Service units with activities associated with non-Federal mineral rights

There are approximately 115 NFS administrative units across the country. Based on land records, 110 units have NFS surface overlying reserved or outstanding mineral rights. Twenty-nine of those units collectively have approximately 12,000 exploration or development operations associated with non-Federal mineral rights. Most of these operations are on eastern forests in Forest Service Regions 8 and 9 and on grasslands in the west, primarily in Regions 1 and 2. The majority of operations are oil and/or gas wells. A few coal mines, mineral material pits, and a small variety of other mineral developments also are associated with non-Federal mineral rights on NFS lands.

History

Reserved minerals

Pursuant to the Weeks Law of 1911 (16 USC 518), when minerals were reserved in a sale or other conveyance of land to the United States, the terms of that reservation included the provisions related to minerals of the then effective version of the Secretary of Agriculture's Rules and Regulations. The current version of the Secretary's Rules and Regulations (36 CFR 251.15) applies to conveyances after May 3, 1963. Earlier versions of such Rules and Regulations associated with the exercise of reserved mineral rights on National Forests were issued in 1911, 1937, and 1947. The Secretary issued versions governing activities associated with reserved mineral rights on the National Grasslands in 1938, 1939, and 1950. The terms of the deed's mineral reservation, including the provisions of the particular version of the Secretary's Rules and Regulations, as well as applicable state requirements, have guided the Forest Service's interactions with holders of reserved mineral rights. In addition, the Forest Service Manual at FSM 2831 provides guidance on the administration of activities associated with reserved minerals.

Outstanding minerals

In 1990, the Forest Service issued Manual direction (FSM 2832) that established terms and conditions for administering activities associated with outstanding mineral rights. An amendment to the Mineral Leasing Act by the Energy Policy Act of 1992, codified at 30 USC 226(o), directed the Forest Service to promulgate regulations to provide terms and conditions that would apply to activities associated with



Proposed Regulations: Exercise of Non-Federal Mineral Rights

FREQUENTLY ASKED QUESTIONS

February 9, 2011

INTRODUCTION

This document informally addresses questions about the regulations currently being developed. It will be updated and expanded as needed.

QUESTIONS AND ANSWERS

What are non-Federal mineral rights?

Non-Federal mineral rights are rights to develop minerals that are owned by private, state, corporate, or other non-Federal entities and that underlie surface owned and managed by the Federal government. Non-Federal mineral rights are categorized as either reserved or outstanding. Reserved mineral rights are those retained by a grantor in a deed conveying land to the United States. Outstanding mineral rights are those rights owned by a party other than the surface owner at the time the surface was conveyed to the United States.

Who owns the non-Federal mineral rights?

Non-Federal mineral rights are owned by a variety of entities, including individuals, states, and corporate. In most situations the owner leases the mineral rights to an operator who is responsible for developing the minerals.

Where do non-Federal mineral rights underlie National Forest System (NFS) lands, and what kinds of operations are associated with those rights?

There are approximately 115 NFS administrative units across the country. Based on land records, 110 administrative units have reserved or outstanding mineral rights. Twenty-nine of those units collectively have approximately 12,000 exploration or development operations associated with non-Federal mineral rights. Most of these operations are on eastern forests in Forest Service Regions 8 and 9 and on western grasslands, primarily in Regions 1 and 2. The majority of operations are oil and/or gas wells. A few coal mines, mineral material pits, and a small variety of other mineral developments also are associated with non-Federal mineral rights on NFS lands.

What is the basis for the development of these regulations by the Forest Service?

The Forest Service is acting to protect NFS lands and resources, pursuant to its rights as surface owner as well as under the authority delegated to it by Congress through such statutes as the Organic Act, Weeks Law, and Bankhead Jones Act.

Why is the Forest Service developing these regulations?

The Forest Service is developing the regulations to:

- Establish a consistent approach to the management of activities associated with non-Federal mineral rights across the country;
- Establish a management approach for non-Federal mineral activities similar to that used for activities associated with Federal mineral estates;
- Improve the effectiveness of Forest Service management of activities associated with non-Federal mineral rights;



United States
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Agriculture

Forest
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File Code: 2830
Route To:

Date: January 27, 2011

Subject: Proposed Regulations for Managing Activities Associated with Non-Federal Mineral Rights on NFS lands

To: Forest Supervisors, CRGNSA Manager

OPTIONAL REPLY DUE FEBRUARY 18, 2011

The Forest Service has drafted proposed regulations for the management of National Forest System lands surface resources when the underlying mineral estate is not federally owned. Non-federal mineral estates are categorized as either reserved or outstanding.

These rules would create a consistent approach to management of activities on such lands nationwide. Such lands are managed by the National Forests in this region, and as such, these rules would be applicable. Internal review and comment of these draft rules would help prepare the proposed rules for public review and comment.

A copy of the latest version of the draft proposed regulations is enclosed. If you have any comments, please provide them on the enclosed comment form to Bob Fujimoto by February 18, 2011, so all comments from the region can be consolidated and sent to the WO per their request. If you have questions about this optional reply due, contact Bob at 503-808-2430 or rfujimoto@fs.fed.us.

Thank you for your assistance.

/s/ Dale Hom (for)

CALVIN N. JOYNER
Deputy Regional Forester

Enclosures

